Trains

September

1944

25¢

How to prevent inflation in one easy lesson

Put that money back in your pocket!

When a lot of people want the same thing, its price goes up.

Americans have more money today—much more—than there are things to buy with it.

So every big or little thing you buy—that you can possibly do without—cuts supplies and bids prices up on what is left.

Rising prices spell inflation. And every inflation has been followed by a cruel and bitter depression . . . men out of work, homes lost, families suffering.

We don't want inflation: we don't want another depression.

4 THINGS TO DO to keep prices down and help avoid another depression

1. *Don't* buy a thing you can do without.
2. *Never* pay more than the ceiling price. Always give stamps for rationed goods.
3. *Don't* take advantage of war conditions to fight for more money for yourself or goods you sell.
4. *Save.* Buy and hold all the War Bonds you can afford—to help pay for the war and insure your future. Keep up your insurance.

A United States War message prepared by the War Advertising Council; approved by the Office of War Information; and contributed by this magazine in cooperation with the Magazine Publishers of America.

Here's another free booklet about trains—*that we think you railroad fans would like*

Who calls the call boy?

...or what makes a train run

Last June we ran an ad in this magazine offering you a little booklet that we give to the soldiers and sailors on our troop trains. The booklet showed how to tell our locomotives apart, and what our signs, signals and whistles mean. We still treasure the hundreds and hundreds of letters and postcards we received from you loyal railroad fans.

Now we have printed another booklet entitled "Who calls the call boy?" It takes you behind the scenes of a single Southern Pacific train —the famous streamlined *Daylight*—and graphically shows all that has to be done before the train can leave and arrive on its daily run between San Francisco and Los Angeles.

The idea for this booklet originated with Mr. A. T. Mercier, president of the Southern Pacific. His hobby has always been the people who make the railroad tick. He knows that the locomotives, cars and track are only the tools with which we work.

This new booklet is dedicated to the men and women who clean the cars and service the locomotive, the track workers and signalmen, the electricians, car cleaners, machinists, pipefitters, boilermakers, commissary workers and the thousand and one other "behind-the-scenes" specialists without whom the railroad could not run.

If you'd like a copy of this booklet for your collection of railroadiana, just mail the coupon. We'll gladly send it to you free.

S·P

The friendly Southern Pacific

SOUTHERN PACIFIC COMPANY
65 Market Street, Room 735,
San Francisco 5, California.

Please send me a free copy of your new booklet, "Who calls the call boy?"

*Name*_____

*Address*_____

*City*_____

*State*_____

Trains

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American railroads produce the world's most efficient common-carrier mass transportation and are the foundation of our country's industrial productivity.

THE Pullman sleeping-car business will be sold by its present owners, Pullman, Inc., and a plan for its disposition will be announced by October 5. This announcement followed a recent Federal court decree compelling Pullman to separate its car-building and sleeping-car-operating businesses by disposing of either one or the other. The car-building subsidiary is known as the Pullman-Standard Car Manufacturing Company.

Ever since the Pullman car was perfected by George M. Pullman, the building and the operating of the cars have been carried on as coordinated parts of the same business, so the separation of the two as ordered by the government poses an entirely new problem to Pullman. The court decision gave only until October 5 to present a plan and another year to carry it out. It seems most likely that the business will be sold to a corporation on the Railway Express order owned by the railroads, and negotiations to that end are now going forward.

Two Trains From One

As a war emergency measure for summer traffic, the *State of Maine Express*, overnight train operated by the New Haven and the Boston & Maine between New York and Portland, is being turned at each end of the run and returned over the same mileage during daytime as the *Day Express*, thus relieving congested conditions on the New Haven's New York - Boston trains and on the B&M's Boston - Portland trains. The *Express*, which has run 365 days a year for many years and which runs through Worcester rather than Boston, consists of coaches and Pullmans. The equipment is cleaned, watered, mechanically maintained and made up and returned within a few hours. On the day trip the sleepers are sold as chair cars and the coaches are unreserved. The operating problem is probably too tight for ordinary peacetime use.

Locomotive Notes

The Virginian has ordered eight 2-6-6-6 Allegheny-type steam locomotives from Lima. . . . The Pennsylvania is building an experimental direct-drive steam-turbine locomotive at Altoona. . . . The Burlington has ordered 50 1000-horsepower Diesel switchers from Baldwin. . . . Boston & Maine has ordered six more 5400-horsepower Diesel freight locomotives from Electro-Motive, making 18 ordered since March, 1942, of which four are now in service. . . . Thirty-seven Diesel locomotives have been ordered from Electro-Motive by New York, Ontario & Western to effect complete Dieselization of the road. . . . Changes in water scoops and tender vents have been made on New York Central locomotives so that they now take water from track tanks at speeds up to 80 miles an hour. . . . Union Pacific has ordered 35 coal-burning steam locomotives from Alco, 5 4-8-8-4 "Big Boys," 20 4-6-6-4 Challengers, and 10 4-8-4's. All are duplicates of types now in service.

Odds and Ends

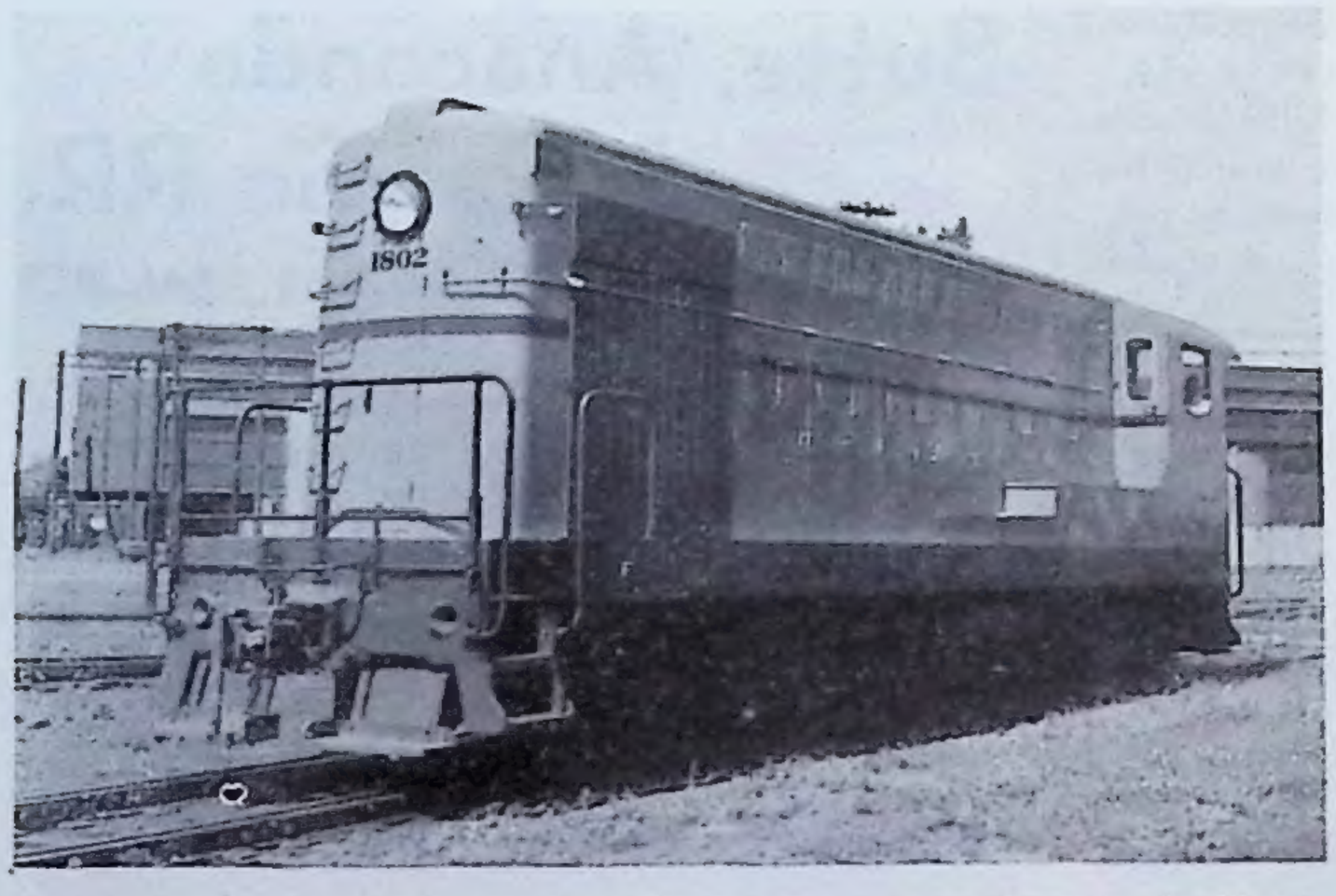
The Central of New Jersey is shifting passenger trains to the outside tracks over the four-track line between Jersey City and Raritan. Formerly, freights used the outside iron, but they will now run on the inside to avoid interference while suburban passenger trains are making station-stops. The changeover has already been made with eastbound trains and will be made within a month with westbound. . . . The Canadian Pacific is automatic-block-signaling 36 miles of single-track line in Alberta, and the Kansas City Southern is block-signaling 36 miles in Missouri. . . . The C&O has inaugurated illuminated engine identification plates high on each side of the smokebox front. These are in addition to the numbers on the headlight and an enlarged plain number plate in the center of the smokebox front. The 40 new Alco-built Berkshires are fitted this way. . . . More than 260,000 railroad men are now in the armed forces. . . . Railroad passenger travel in the first four months of 1944 was greater than in the first four months of 1940, 1941, and 1942 combined. . . . The Frisco, in an effort to attract new industries to southern Missouri, has just published an elaborately detailed booklet entitled "Missouri Mineral Wealth." It is the third survey of its kind made by the Frisco. . . . The United States Railway Mail Service was 80 years old August 28, anniversary of the establishment of the first permanent railway postoffice in a car of the C&NW between Chicago and Clinton, Ia.

Three-Deck Coach

A three-deck streamlined coach has been designed by Pullman-Standard for postwar manufacture. The detailed design announced at present is for suburban service and seats 112 passengers with such luxuries as card tables and lounge seats. At each end over the trucks the car floor is at normal level, but between the trucks are two floors totaling 13½ feet in height and reached by stairs up and down. The lowest level has two rows of 22 outward-facing seats back to back with aisles on each side. The top level has a conventional seating arrangement. The basic design can be varied for long-distance travel and to suit the needs of individual roads.

Military Railroad in France

Timetable No. 1 for the United States Army Military Railroad in Normandy was issued effective as of 0001 double war time, Monday, July 17, and lists scheduled times and stations with mileage from station to station. Printed "for the information and government of military personnel," the table includes the following edifying notes: "Double-track operation, normal



First locomotive by Fairbanks, Morse & Company, new entrant in the Diesel-electric field, is a 1000-horsepower switcher delivered last month to the Milwaukee Road. A complete line of road locomotives will also be made by F-M.

current of traffic is to the right; Trains 1, 2, 3, and 4 will stop at all stations listed above; the eastward trains are superior to trains of the same class in the opposite direction."

Passenger-Opinion Poll

What travelers think of present-day passenger service, their likes and dislikes, and their future travel plans are being carefully studied by Burlington Route traffic officials following interviews by unidentified fellow travelers, with several hundred passengers on conventional and secondary trains, as well as on streamlined Zephyrs.

Following, according to Albert Cotsworth Jr., passenger traffic manager, is some of the information developed by the survey:

A large percentage of travelers place a high valuation on the safety and dependability of railroad transportation.

Approximately nine out of ten who expressed opinions said train service employees, ticket agents and information clerks were entirely satisfactory.

Despite the fact it has been necessary to press many older cars into wartime service, 87 per cent declared equipment and seats were comfortable, and 92 per cent asserted fares were reasonable.

Nine out of ten liked the food and service in dining cars, and 76 per cent felt prices were reasonable.

Radios on trains appealed to 97 per cent, although preferences as to programs varied widely.

Less favorable were the views on stations and train restrooms, only 69 per cent rating stations as satisfactory and only 70 per cent expressing satisfaction with restrooms. However, untidy fellow-passengers were given much of the blame for restroom conditions.

"The survey indicates," Mr. Cotsworth said, "that approximately three-quarters of the people riding trains today did most of their traveling before the war by other means of transportation, chiefly private automobiles. It is encouraging to us that a very considerable number of these people assert they will use trains more, especially for long trips, in the postwar period. Such expressions were very frequent among travelers on the *Zephyrs*, who liked the speed-with-safety and the accommodations.

"Another interesting disclosure was the large percentage of people traveling widely today who traveled very little before the war. It seems reasonable to assume that many of them will continue traveling and that travel by all forms of transportation will reach new high levels in the postwar years."

Timetable Oddity

To the best of our knowledge, only one railroad in the country makes provision for firemen who cannot read. This is the Georgia Railroad, and it states in its employees' timetable that "engineers will read their orders to firemen who cannot read."

Strange Interlocking

The only interlocking so far heard of between railroad and airline is at Bolling Field, Washington. A little-used line of the B&O crosses the field, and the airport control tower can hold the railroad signals at "stop" when a flight is approaching.

Monthly Train

If anybody asked you what was the most infrequent train service in North America, how would you answer? Look at Table 88 of the Canadian Pacific representation in the *Official Guide*. You will find that No. 462 runs from North Battleford to Ravenhead on the second Friday of each month, and No. 465 returns on the Saturday following the second Friday of each month. We wonder how they make out in midwinter, with goodness-knows how many feet of snow piled up. Once a month would hardly serve to keep the tracks open.

A. C. Kalmbach.

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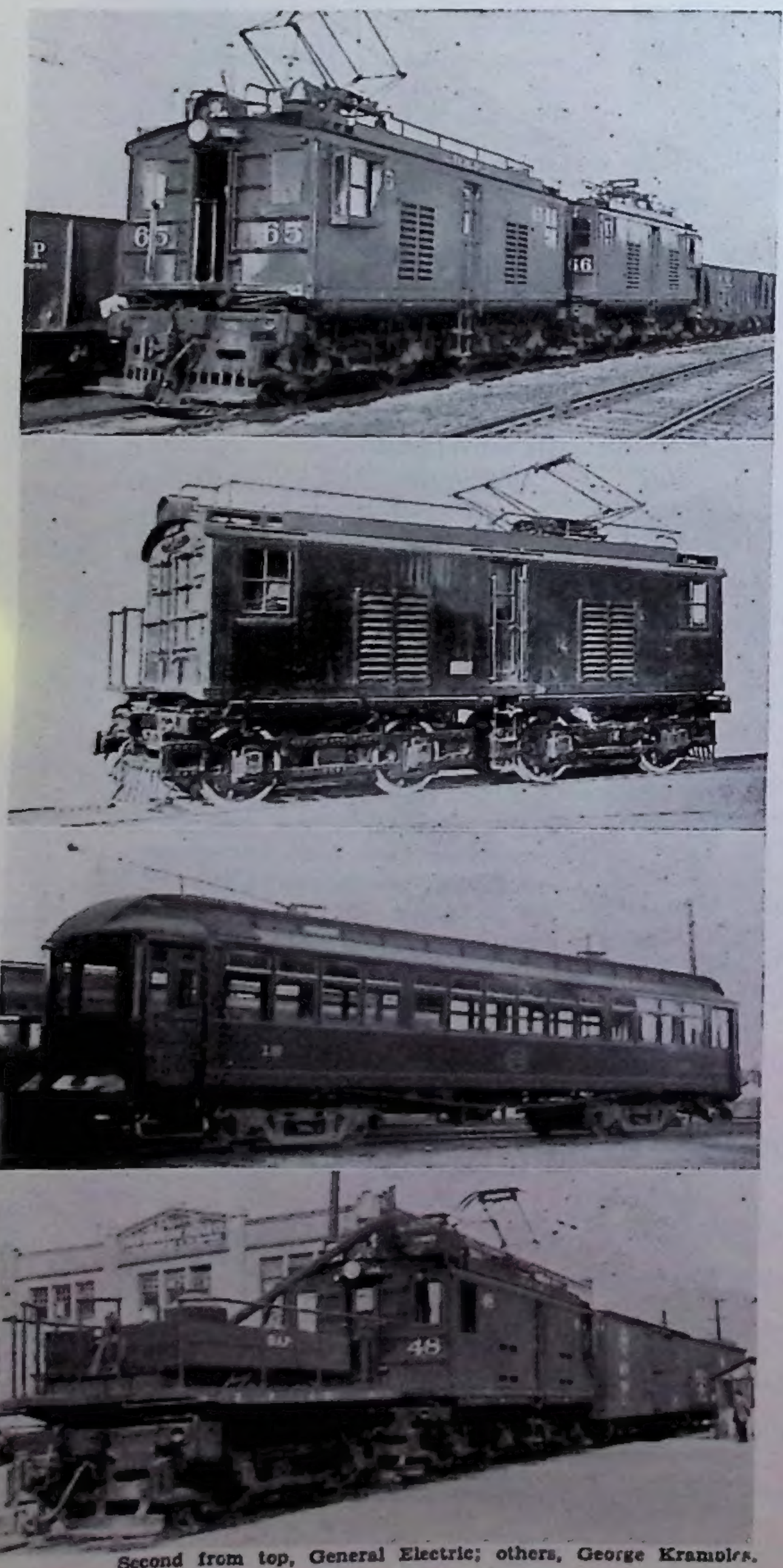
Butte, Anaconda & Pacific RR.

BY GEORGE KRAMBLES

Two B&AP locomotives, the 65 and 66, are designed for passenger service, although service is now mixed. They were built in 1913 by General Electric as part of the original electrification equipment, and are practically identical (except for gearing) to the 26 freight locomotives, one of which is shown in builders' photo below. Both have 40,000 pounds starting tractive effort, but the freight locos are geared for 35 m. p. h. maximum speed and the passenger for 50 m. p. h. The Anaconda Company interurban car runs in and around Anaconda.



Second from top, General Electric; others, George Krambles.

Freight locomotive with booster truck switching on the Northern Pacific interchange track at Butte. The extra power truck, ballasted with concrete and scrap, adds about 50 per cent to tractive effort.

BUTTE and Anaconda are connected by the Butte, Anaconda & Pacific Railway, a 2400-volt D. C. railroad networking the Montana mine and smelter areas with more than 100 miles of track. Butte is in the center of rich copper ore deposits served by over 2500 miles of underground workings. Anaconda, 26 miles northwest and with a population of only 12,500, has the largest copper smelters in the country, and manufactures of the town range from beer to bricks and cigars. It has a street railway system owned by the Anaconda Copper Mining Company which uses interurban-type cars operated during smelter shifts in trains up to five cars in length.

The prevailing gradient is downward from Butte to Anaconda, which of course favors BA&P operation, since the bulky ore is moved to Anaconda and the refined metal back. Actually, both terminals are reached by 0.7 per cent grades, but the Missoula Gulch line at Butte is almost entirely on 2 per cent grade. At Butte connection is made with the Milwaukee Road, Great Northern, Northern Pacific and Oregon Short Line railroads, and BA&P is kept busy feeding these transcontinental connections as well as switching staple goods in Butte.

Although the road is scenic, sharing historic Silver Bow pass with the Milwaukee Road, and once was a favorite ride of holiday seekers, the BA&P now accommodates passengers only on mixed trains. In such service it is common to see two of its standard double-truck (B + B) engines back into the Milwaukee Road's Butte depot with a handsome green combination coach. Since the Milwaukee uses 3000-volt trolley, BA&P must use only its own track in the station, which is similarly forbidden to the giant Milwaukee Road locomotives. After waiting only a minute or two for whatever sparse traffic may come at the depot, BA&P's train sneaks gladly away, and one has the feeling that the train has simply paid a necessary duty call on the traveling public and now proceeds to much more important business helping supply Uncle Sam with a most valuable mineral. That business comes to sight after an easy four-mile cruise through the outskirts of

General Electric.

Silver Bow Canyon

The pictorial narrows of the headwaters of Clark Fork brings the tracks of three railroads close together. In the foreground is the Butte, Anaconda & Pacific. The other electrified line is the main line of the Milwaukee Road, while the steam road is the Northern Pacific's main line via Butte. This latter line was the first built, taking the most economical route with minimum of earthwork. The BA&P found Silver Bow Canyon ideal for crossing the NP because of the different levels.

Butte on a track directly parallel to the Milwaukee Road's main line—so close, in fact, that span wires reaching across both railroads may efficiently be utilized to support both the 3000-volt and 2400-volt trolleys. At Rocker, junction is made with the ore line, and here a train of 50 to 75 loads will separate the way car from the engines.

BA&P has the distinction of being the first successful replacement of steam by electric power on a mountain railroad, and many lessons learned on its rails were applied in the Milwaukee's electrification; in fact, Milwaukee Road engines were tested out on BA&P tracks before electrification of the larger line was completed.

BA&P has a standard motive-power unit, a double-truck articulated 162,000-pound engine having four GE-229a motors. These units can be operated in multiple and are frequently seen at the head end in groups of three, with an available tractive effort of 120,000 pounds. For switching purposes, an arduous duty in such a hilly pair of towns, a convenient, if a bit unusual, arrangement of booster truck is used. This booster is really a locomotive in itself, 20 ft. long, with standard draft gear and footboards at each end. The eight motor leads from the two motors on this truck are carried up a huge conduit mounted at an angle of about 45 degrees and jumpered across to receptacles in the roof deck of a standard engine unit. The booster truck does not have a control of its own; its motors connect to the control group of the standard unit to which it is coupled. It is weighted down with cement and scrap-iron ballast and the truck thus adds about 50 per cent to the effectiveness of the engine. This is not to be confused with multiple-unit operation, where several motive-power units are controlled from an operating cab in any one of them, using control circuits in which the main traction currents are not handled. BA&P is the only known application of this interesting system of operation, and one can readily imagine its flexibility in obtaining just the right size motive-power unit for any job to be done.

TIME: Shortly after the cessation of hostilities in World War II.

SCENE: Office of the President of the HC&E Railway.

CAST OF CHARACTERS

MR. CHARLES HARRIHILL, President.

MR. LIONEL TONNAGE, Vice-President, Traffic.

MR. JEFFERY CLEARBLOCK, Vice-President, Operation.

MR. CARL RETARDER, another Vice-President.

MR. TOM TABLE, Passenger Traffic Manager.

MR. ERNEST BOND, Comptroller.

MR. IAN GOODWILLIE, Public Relations Director.

MR. MARTIN MILLINE, Advertising Manager.

MR. X, the mysterious stranger.

Sit in on this conference of progressive railroad executives and hear them discuss new breath-taking schedules, new daring designs for equipment, new low fare structures, and a new evolutionary type of rail service coordinated with bus and helicopter operations. A preview of what a railroad might do to induce you to ride the rails.

PRESIDENT HARRIHILL: Gentlemen, we are here today to discuss plans for holding the passenger traffic of this railroad. We must face the facts. If we are to survive as a going institution, we must attract sufficient passenger and freight traffic to operate the railroad *profitably*. Otherwise it's government subsidies, bureaucracy, decadence . . . the end of the line.

We acquitted ourselves well in the war. The HC&E carried millions of troops and their impedimenta on the army timetable. We carried millions of civilians who couldn't use their automobiles and had to fall back on the railroad for their business, social, or vacation trips. We carried tens of thousands of passengers who couldn't get plane seats.

I think the public realizes, to some degree, that the American railroads have done a tough job most creditably. Unfortunately, a great section of the public, who had not been our patrons in prewar years, had some discomforting experiences on our trains. They got a taste of our service at its worst, and our war record won't help us one whit in overcoming this impression. They didn't like our overcrowded stations, our overloaded coaches, our congested dining cars, our shortage of sleeping-car space, our hurried attitude which they mistook for brusqueness, our failure to maintain schedules. Wartime patrons didn't get a representative sample of our service.

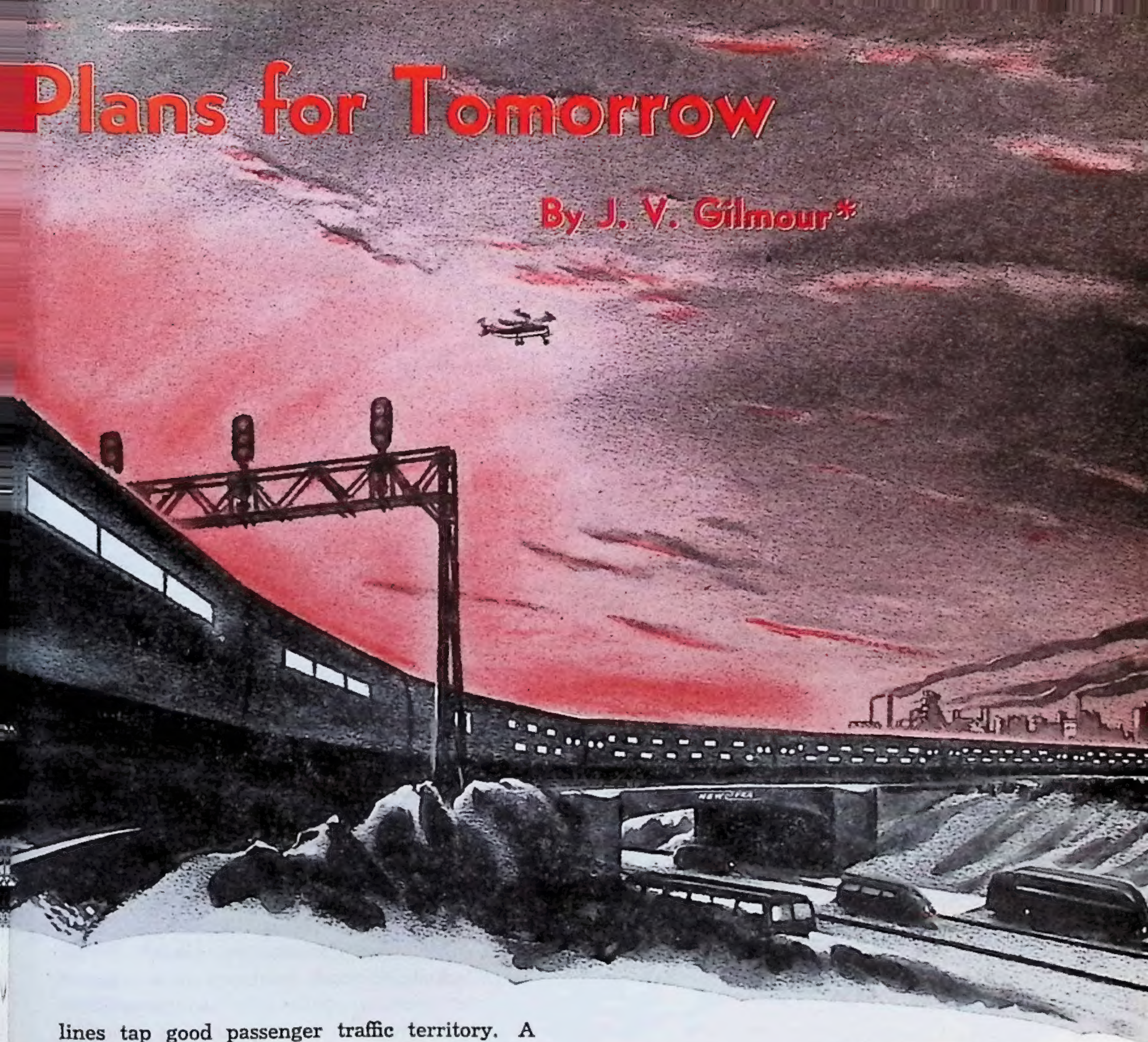
So, we've a big job to do. A job of selling our "step-patrons," who adopted us in the war days, and of reselling our more durable prewar patrons. On our success depends the very life of the HC&E.

You have noted there is a stranger in our midst. I am going to reserve the pleasure of introducing him until later, but in the meanwhile you may speak freely. Now I suggest that our traffic vice-president lead off the discussion.

VICE-PRESIDENT TONNAGE (puts outline map on easel): This map shows only the lines over which the proposed New Era service will first be operated. We'll start out with the Eastern Division, serving a thickly populated industrial area between Hub City and Steelton—400 miles. As you well know, in addition to Hub City and Steelton, there are four thriving cities and a number of secondary cities and towns on the main line. Two of the branch

Plans for Tomorrow

By J. V. Gilmour*



ILLUSTRATED BY RALPH FREDERICK

lines tap good passenger traffic territory. A fine highway parallels the main line, but due to heavy traffic and the many towns en route, high speed by private auto or bus is not practicable.

An air line now provides service between Hub City, Coke and Steelton. A second airline is now applying for authority to cover this general territory with local planes and helicopter service. So, for the first time, *all* of our mainline cities and two of our branch-line cities, Alloy and Slagmont, will have regular air service. But candidly, under the plans we have, I am more concerned about the railway and highway competition.

Our job through the war was to handle the great volume of traffic that came to us, "standing 'em up" if we couldn't "sit 'em down." Passenger business is still heavy, though dropping off. Lest it continue to drop off, we've got to get busy *now*. Yes, we've got to get busy and give the public what it wants. For the traveler is going to be wooed by the several transportation agencies as never before—and he has experienced some pretty warm courtships in the past.

We were enjoying encouraging results during the immediate prewar period by the operation of fast, comfortable streamlined trains. In my opinion, with the conditions we have to face, just putting on modern, lightweight trains isn't the full answer. We intend to move forward.

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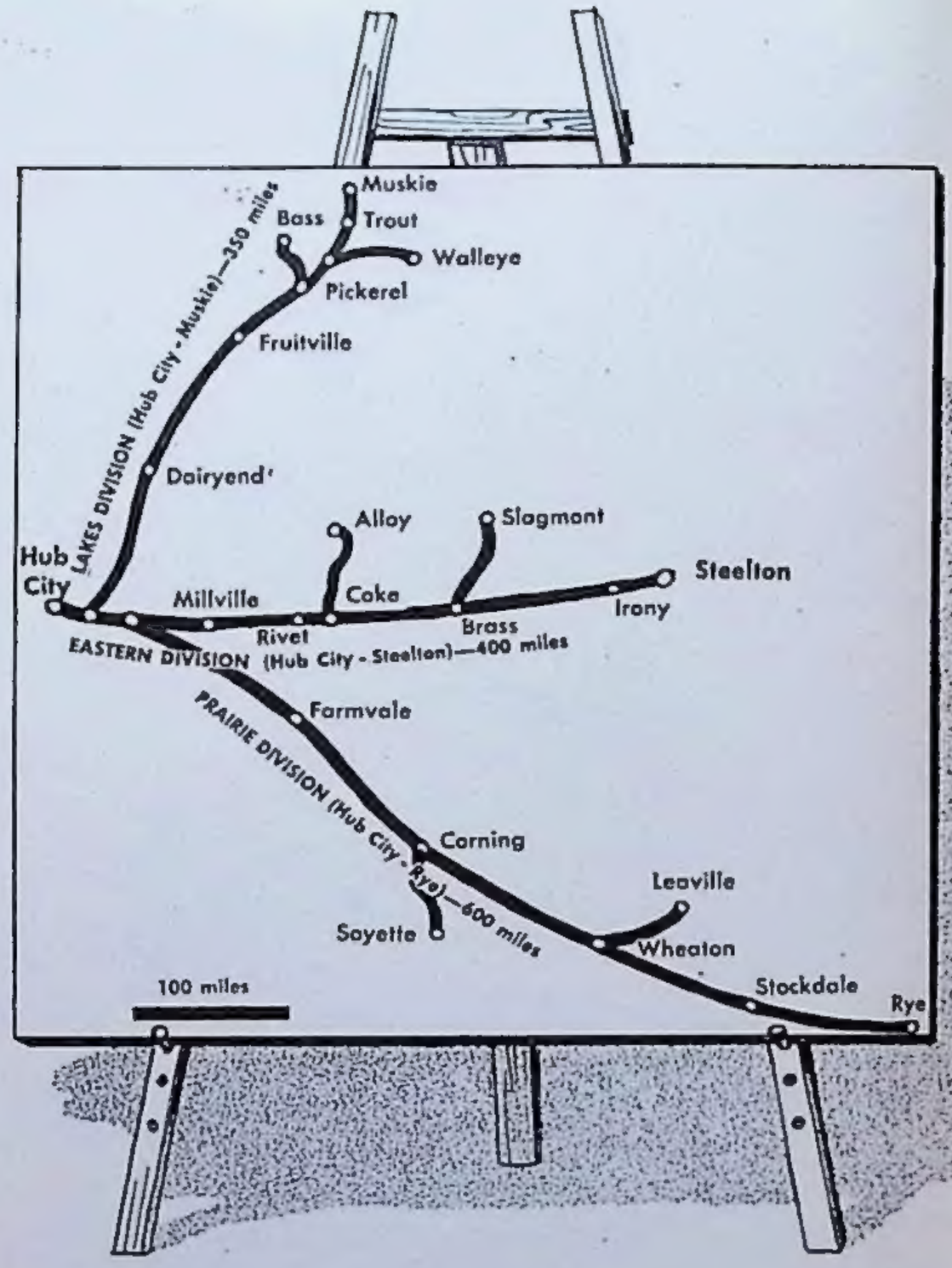
* J. V. Gilmour, an advertising-agency executive, has helped plan and prepare advertising campaigns for a dozen or more important railroads and has been identified with the introduction of some of the nation's famous trains. He makes no claim to being an engineer but contends that resourceful engineers and builders can incorporate the new departures advocated by the "HC&E," which is, of course, a fictitious railroad.

What are the essentials of what we intend calling New Era service? Let's take *convenience* first. If a passenger wants to get out of Hub City in the morning for Steelton, we should have a service ready for him. Likewise, if he wants to get out of town at noon or afternoon or evening or late at night. If we don't provide him service when he wants it, somebody else will. So first let's pre-empt the desirable leaving times, and second, let's offer service as frequently as the traffic justifies. The potential traffic doesn't warrant a train "every hour on the hour" but, in the rich industrial territory tributary to our Eastern Division, there *is* a population of near five million people who have itchy feet! I'm counting on them more than our commercial and business travelers. Between terminals, I would like to see five New Era trains in each direction every day, and one through local on a schedule satisfactory to the mail, baggage, and express department. Suburban and local service between Hub City and Millville, and between Steelton and Irony, will be retained. We have strung a skeleton timecard for the high speed trains, subject to respacing, which would give us something like this: (Puts large time card on easel.)



Eastbound—Daily

Miles			The Reveille No. 2	The Recall No. 4	The Retreat No. 6	The Tattoo No. 8	The Taps No. 10
0	Hub City	Lv	9:00	12:01	4:00	6:30	1:00
100	Millville	Ar	10:15	1:15	5:15	7:45	2:30
180	Coke	Ar	11:15	2:15	6:15	8:45	3:40
260	Brass	Ar	12:15	3:15	7:15	9:45	4:50
360	Irony	Ar	1:30	4:30	8:30	11:00	6:15
400	Steelton	Ar	2:00	5:00	9:00	11:30	7:00

Westbound—Daily

			No. 1	No. 3	No. 5	No. 7	No. 9
0	Steelton	Lv	8:30	12:01	3:00	6:00	1:00
40	Irony	Ar	9:00	12:30	3:30	6:30	1:45
140	Brass	Ar	10:15	1:45	4:45	7:45	3:10
220	Coke	Ar	11:15	2:45	5:45	8:45	4:20
300	Millville	Ar	12:15	3:45	6:45	9:45	5:30
400	Hub City	Ar	1:30	5:00	8:00	11:00	7:00

Additional Through Service—One through train, making all necessary stops in each direction, for handling local passengers, mail, express and baggage.

These are fast schedules! Breath-taking schedules! But *speed* is "of the essence" in postwar transportation. The new type of passenger plane will make the flight between Hub City and Steelton, 380 miles by air line, in under two hours. I don't know just what schedule will be established for a combined plane-helicopter operation from Hub City and Steelton to serve Millville, Coke, Brass, Irony, and probably other cities on our line, but I think we can figure on something well over 100 miles an hour, including time consumed going to and from airports. Jeff tells me the best we can do between Hub City and Steelton, with four regular stops, is five hours—or an overall schedule, allowing for stops, of 80 miles an hour for the 400 miles.

VICE-PRESIDENT RETARDER: Why, I'd be a—I er— I mean—people would be afraid to ride at such a speed.

PRESIDENT HARRIHILL: The people showed no fear when we cut our time before. How about the hazard, Mr. Clearblock?

VICE-PRESIDENT CLEARBLOCK: Hell's bells! Tight schedules work contrary-wise. Speed calls for precision railroadin'—everyone alert and on his toes. It's loafin' schedules and slipshod operation that make trouble. And that's my opinion.

PRESIDENT HARRIHILL: Thanks, Jeff. Please proceed, Mr. Tonnage.

VICE-PRESIDENT TONNAGE: While Jeff likes 'em fast, he can tell you why five hours' running time is the best we can maintain with dependability. He knows that we want no "paper schedules," so we are making them all a flat five hours with the exception of Nos. 9 and 10, the 1 a.m. departures. They'll be a flat six hours, perhaps seven. A shorter schedule, with a later than 1 a.m. departure (many prefer midnight), or a milk-train arrival, would be a disadvantage to overnight travelers, as you can appreciate. Then, too, with the longer night schedule we could handle mail, express and baggage on the head end. These schedules protect our important connections, give us convenient departures

and arrivals at terminals, and a good spread throughout the day at Millville, Coke, Brass and Irony.

To serve intermediate stations, where trains will not stop, the traffic department proposes that buses be operated on schedules coordinated to connect with arrival and departure of *all* New Era day trains. In addition to the main line, we contemplate the same kind of coordinated bus service between Brass and Slagmont. In the terminal districts we'll synchronize local train service with New Era schedules.

Between Coke and Alloy, I suggest we take to the air ourselves. There's not much passenger business in the intermediate mining district served by this line. Our single track is busy with heavy coal drags. The highway is "slow"—winding, and up hill and down dale. With a helicopter we could take off at Coke, from our property a block from the station, and land on the large lot right across the right of way from Alloy station. Of course, it's experimental, a venture into a new element, but I urgently recommend that it be tried out as soon as tested equipment is obtainable.

VICE-PRESIDENT RETARDER: When we filed for those air routes, I never dreamed we'd ever really fly! We'll have some terrible accidents! And safety is our ace in the hole!

PRESIDENT HARRIHILL: You'll find the caboose on the coal drags slow but sure, Mr. Retarder. Go ahead, Lionel.

VICE-PRESIDENT TONNAGE: In addition to the on-line stations, numerous towns are located in territory not on, but tributary to, our line. Residents of these communities should be invited to drive their automobiles to the nearest HC&E station for boarding trains, leaving cars in parking space on the station grounds.

Now, what kind of trains are we going to run? They'll have to have eye appeal and they'll have to provide a degree of *comfort* that would have been termed Roman luxury a few years ago. We'll need a pool of four identical trains for day service and two identical trains for night service. On the proposed schedule each day train would make a round trip daily. Units would be Diesel-powered, and styled by Azure Aye, the noted industrial designer. From his preliminary drawings I would say that, from the outside, they will be the sweetest-looking things that ever took to the rails—smart, colorful, modern, yet strictly utilitarian. Remarkable engineering ingenuity will be incorporated in the design of the new-type two-tier coaches.

VICE-PRESIDENT RETARDER: I'm surprised *you'd* go for anything like a double-decker, Jeff. Remember that little schooner I had a few years ago? You complained bitterly about the lack of full headroom. Now you want to make all the people in Eastern Division territory stoop-shouldered.

VICE-PRESIDENT CLEARBLOCK: There'll be no need of passengers becomin' stoop-shouldered. Seats in both the lower and upper tiers will be easily accessible from a common middle aisle which will have full headroom. Seats on both sides of the aisle will be staggered, so that passengers in the lower tier can stand with full clearance in front of their seats and those in the upper tiers will have full headroom.

While the facing Fulrelax seats in the lower tier will be slightly recessed, there will be ample headroom and legroom aplenty when in a sittin' position. We're allowin' seven and a half feet from seat-back to seat-back. In the upper tier the seats can be placed facin' or arranged in one direction. Swing-up tables, foot rests, and luggage lockers and racks are part of the plan. Here, one picture is worth a thousand words. (Shows artist's conception of two-tier coach.) The four toilets and two restrooms will occupy the full depth of the car. No, it's not headroom that worries me; but the job of cleanin' and servicin' these cars is a tough cocoanut. We'll crack it somehow!

VICE-PRESIDENT TONNAGE: I might add, Mr. Retarder, that we had set up in several stations on the Eastern Division a section similar to a four-seat section of our present coaches. We also set up a section resembling the proposed two-tier arrangement. Passing people were asked which setup they liked best. Cost was not mentioned. Fifty-seven per cent favored the new arrangement. No, gentlemen, we're not proposing to plunge blindly into a new type of coach accommodations. A new system of air-conditioning will provide fresh, clean air modulated for variance in the load. The cars will be low-slung and mounted on a new type of gyro-suspension spring, assuring an easy ride no matter what part of the car you are in.

Our two-tier sleeper-coaches, too, will be strictly new in principle and detail. You will adjust your berth seat to sit or recline at any angle, from upright to horizontal, and a pillow and throw-over will be available gratis to each passenger.

VICE-PRESIDENT RETARDER: It's preposterous! You mean passengers recline without disrobing?

VICE-PRESIDENT TONNAGE: Positively, Mr. Retarder, positively! Each sleeper-coach will have a ladies' lavatory and a men's lavatory. But what will score a bull's eye is the lounge-washroom car! Our advertising people will certainly have to find a more high-falutin' name for it. This car will have 20 seats in the lounge end. The larger section will be divided into roomy, completely appointed washrooms with showers and electric pressing irons. Here a woman can change her costume, or, er—disrobe—and a man can shave and freshen up in comfort.

VICE-PRESIDENT RETARDER: Not together, I hope!

VICE-PRESIDENT TONNAGE: No, they'll be in separate rooms. The recreation and club car will have movable, upholstered seats, card tables, television if it's ready, and nursery-room in the lounge section. There's been a lot of discussion about the disadvantages of movable seats, and if the operating department has its way they'll be anchored. The other section of the car will have the most glamorous cocktail lounge and bar this side of Shangri-La. The dining cars will be singularly attractive—complete, compact restaurants on wheels. A variety of moderate-priced dishes will be featured, cafeteria style—trays being moved from counter to table by bus-boys. Patrons will be served smoothly and quickly so we can accommodate four or five sittings to a meal. The dining car will be supplemented by economical tray service—sandwiches or box lunches—at seats throughout the coaches.

Our electrical engineer has some very advanced ideas about lighting to suit each type of car. A public address system will be installed for calling stations, making announcements, and for paging passengers. There'll be radio outlets in the coaches, the tuning being controlled from the recreation car. Each train will be adorned by a hostess who, to qualify, will have to be a combination of Florence Nightingale and Hedy Lamarr. Train attendants will be spruced up in uniforms as dressy as those of the Coldstream Guards.

In a few minutes, I have tried to give you a picture of our New Era trains. Our buses will be styled to harmonize with the rail equipment. On our Lake and Prairie divisions, New Era service will be adapted to meet all the through and local traffic requirements of the territories served. We must be flexible in our technique, utilizing every facility to advance our interests —bus, airplane, even automobiles "for rent" available at our stations. Our main operation will continue to be a railroad operation, but we must employ every medium of transportation necessary to implement our basic service. This we intend to do insofar as we can. (*Applause.*) I have touched on three essentials of New Era service—*convenience—speed—comfort.* And now I would like our passenger traffic manager to tell you about the fourth—*economy.*

PRESIDENT HARRIHILL: Well, I must say that when Mr. Tonnage couples up what we have been talking about in sections, it sounds pretty good. I am sold so far, with one reservation. Go ahead, Tom, give us some more.

PASSENGER TRAFFIC MANAGER TABLE: In considering tomorrow, the prewar years are a poor guide and our experiences of the war period with its abnormal traffic are of questionable value. America will now go through the process of forming new travel habits. Sleek, shiny automobiles will soon come off the production line. New highway improvements are under way. New, faster skyliners are being built. Flivver planes, at automobile prices, for family use are already on the market.

To feel the public's travel pulse, we are using not only our own representatives but an independent research organization to interview people in the Eastern Division territory. Our preliminary findings have been helpful in planning our equipment, in setting up schedules, and particularly in the matter of pricing. It seems price will be a primary factor in the travel scheme. The railroads justify their indispensability largely on the premise that they are the bulk common carrier. The advantage they enjoy from large volume, according to economic law, should be reflected in low price. Now, can we expect to derive this bulk traffic from the relatively small number of people in the drawing-room class? Hardly. It's got to come from the masses. And if we are going to point at the great mass market, logically, our rate of fare and accommodations should be set up accordingly.

VICE-PRESIDENT RETARDER: Mark my words! You'll see your drawing-room passengers standing in line at the airline ticket window.

PASSENGER TRAFFIC MANAGER TABLE: Where they'll find only one class of travel, Mr. Retarder. . . . So, on the premises already stated —namely, price appeal—we are proposing a basic day-coach fare of 1 cent per mile—one way or roundtrip—ten miles or a thousand.

VICE-PRESIDENT RETARDER: Excuse me for interrupting, but don't you realize, man, that this will upset the whole interline fare structure? How about the I. C. C.? And you might as well throw our present tariffs out the window!

PRESIDENT HARRIHILL: Which might be the right procedure, if it will help us sell more tickets. Go ahead, Tom.

PASSENGER TRAFFIC MANAGER TABLE: This low rate will bring our coach fare down below the level of all competing forms of transportation, and I know no surer way of keeping the profitable payload. Past experience has proved, beyond a doubt, that profits come from a high percentage of train occupancy at attractive fares, rather than a low percentage of occupancy at prohibitive fares. Lately, we have enjoyed many times the volume of passenger traffic that we did but a few years back. To keep this volume we must keep our prices *down*—down so low that people will not return to other modes of transportation war conditions have denied them. If the business ever gets away again, we'll have a mighty hard time recovering it. Even the device of still lower fares, which would be suicidal without volume, will be of no avail. For occupancy of our sleeper coaches, with their more limited capacity, we propose a fare of 1½ cents per mile, one way or round trip, with sleeper-seat.

We are thoroughly overhauling our passenger traffic personnel. Everyone behind a wicket, on the street, or behind a desk, is going to have to be a salesman, not just an order-taker. Each man and woman will get the training, the information, the advertising support, and, above all, *the services,* to enable him to sell. Every employee will have to stand on his record and I'm going to fight to see that producers get paid and promoted according to results. For the most part, our men are loyal, experienced and energetic. The few that are "gold bricks" and defeatists are on the way out. We are taking steps to expedite the handling of passengers going through terminals and large stations. We are not going to tire our passengers out before they board the train. Let me assure you that the passenger department will not be found wanting. (*Applause.*)

PRESIDENT HARRIHILL: That was a splendid presentation. But frankly, I am not yet sold on what is virtually a mono-class idea—and you'll have to show me how we'll come out on those sensationally low fares. It's a drastic move to take—at least, to take in one step. I'm inclined to favor a parlor-car service on the day trains, and that "roll-in" type of sleeper we saw the plans of, on 9 and 10.

VICE-PRESIDENT TONNAGE: I doubted that we'd sell you on the mono-class idea. But I hope Tom and I have made the point that it's the masses we've got to get our revenue from or shut up shop. Now let's put a two-tier parlor car on each of the day trains—one of those "pantry" parlor observation cars we've been talking about. It seats 48 on two levels and has a pantry serving meals such as the airplanes offer, and a service bar for refreshments. The fare discussed, 2 cents per mile for parlor-car passengers, including seat and airplane-type meal, is below the prevailing coach rate. Predicated on an anticipated payload, the car would be profitable on this basis.

The other day when we discussed the "roll-in" sleeper, we decided that 2½ cents per mile, for transportation and a "slumberette" room, would be a good rate. And I'm for the idea of having a chicken sandwich and a glass of milk in a Kooler Kontainer in each room with the compliments of the HC&E. Ah! What a godsend it will be to the night-owls! So if it meets with Mr. Harrihill's approval, let's figure on the "pantry" parlor cars on the day trains and the "roll-in" sleepers on 9 and 10.

VICE-PRESIDENT RETARDER: That gets my vote!

PRESIDENT HARRIHILL: Jeff, can you tell us about how long it will take to get delivery on the new equipment should we be given an authorization by the directors—also, what's to be done on the right of way?

VICE-PRESIDENT CLEARBLOCK: If we could go into production tomorrow, nearly a year would

pass before the wheels were turnin' on the rails. And if we dilly-dally at all, it may be two years or more. Now don't get that shocked look on your faces. Hell's bells, the locomotive builders are just after startin' their job of re-convertin' for full regular production. Now we're comin' along and askin' them to turn out a job incorporatin' certain characteristics that are new to them and everybody else. If we're timid and procrastinate, there'll be many an order ahead of us.

Now as to the cars. We're buildin' a new type of car. Again I say we'll be on the hind end if we dilly-dally. After gettin' under way with the bodies and trucks, there's literally a hundred and one things to be made or bought. And then fitted and changed and tested and retested and discarded and accepted. The lightin' fixture people and the air-conditionin' people and the seat people, and the plumber people, and all the other people, have been thinkin' and doin' mostly war work. Now it's about-face and start makin' fancy gadgets. So, answerin' the Chief's question as to when we can expect delivery of the trains complete, the whiskey on the back bar and the powder in the powder-room, I'll say a year, if we go to town *now*.

Now as to the railroad. Our Eastern Division is a fine piece of railroad—none better, even now, after the poundin' it's taken durin' the last years. So continuin' as we were, we had a sizable job ahead replacin' rails and ties, reballastin', straightenin' the eastbound main when we elevate at Brass, and carryin' on a thorough reconditionin' job. But now, increasin' the speed of our trains, introducin' the double-deck coaches with a new load distribution, calls for further modification of some of our curvatures.

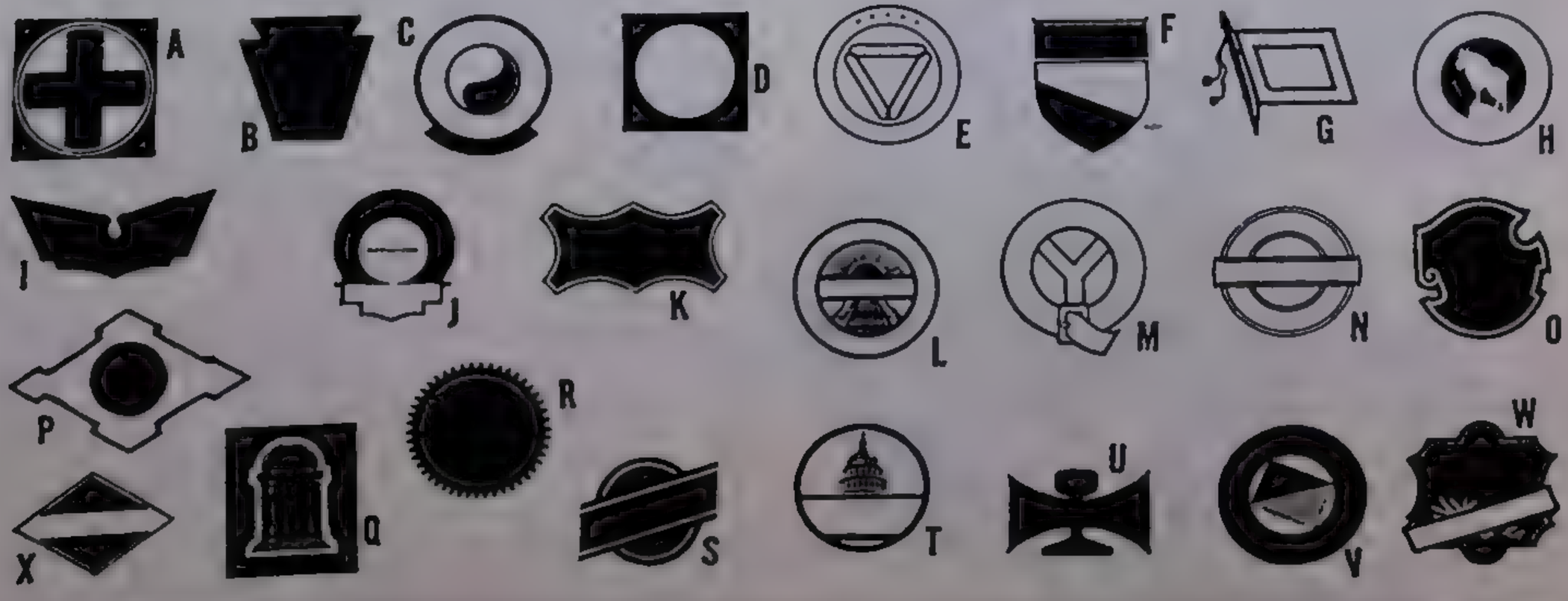
What with keepin' ten high-speed trains movin' every day, we're goin' to have to have some new and longer sidin's. Even with double track all the way, and multiple part of the way, we've got a precision job in keepin' the line clear of the long coal drags, fast freights, time freights and extras that make the Eastern both a sweetheart and a headache. The work of completin' the centralized traffic control, beyond Brad Junction, is under way. The electronic communication system we're developin' will be installed as soon as it's perfected, on the Eastern Division. Our stations at Coke and Irony need face-liftin'. I've submitted the budget to the Chief. If he can give us what we've asked for, we'll keep the 80-mile-an-hour beauties on schedule regularly. Here let me add something off the subject. I think these new trains will be a tonic to the trainmen. With the big fight over and us steppin' ahead again, I think you'll see a new spirit on the line. It's most important that we regain our good name for courtesy and friendliness.

PRESIDENT HARRIHILL: Well said, Jeff. Reconditioning our employees is equally important to reconditioning the railroad, and more difficult. It's something we're already concentrating on. And now for a look at the dollars-and-cents aspects of our venture. Mr. Guardian of the Exchequer!

COMPTROLLER BOND: Here's preliminary estimate. Very sketchy. Too hurried. Always

Do you know these railroads?

Answers on page 43.



changes. Includes everything 'cept helicopter. Can't keep up with you fellows:

2 express-baggage cars	$ 45,000	$ 90,000
4 combination two-tier coach-bagg. cars	65,000	260,000
14 two-tier coaches	75,000	1,050,000
6 two-tier sleeper-coaches	85,000	510,000
4 pantry-parlor-observation cars	80,000	320,000
2 roll-in sleepers	85,000	170,000
4 cafeteria-diners	75,000	300,000
4 club-recreation cars	75,000	300,000
2 lounge-dressing-room cars	65,000	130,000
6 Diesel-electric locomotives	275,000	1,650,000
8 Easeway buses	30,000	240,000
		$5,020,000

If it's decided to operate sleepers under contract, as now, deduct $170,000. Under the proposed setup, consist and capacity of trains would be as follows:

Day Trains

Cars	Revenue Seats
1 combination two-tier coach-bagg. car	44
3 two-tier coaches—88 seats per car	264
1 pantry-parlor-observation car, double-decked	48
1 cafeteria-diner—48 seats	
1 club-recreation car:	
Club section—22 seats	
Recreation section—24 seats	
7 — 46 seats	
Total revenue seats	356

Revenue per Mile	
Capacity 308 seats at 1c per mile	$3.08
Capacity 48 seats at 2c per mile	.96
100 per cent occupancy	4.04
70 per cent occupancy	2.83
60 per cent occupancy	2.42

Night Trains

Cars	Revenue Seats or Berths
1 express-baggage car	
1 two-tier coach	88
3 two-tier sleeper-coaches—64 seats per car	192
1 roll-in sleeper—2 beds	25
1 lounge-washroom—20 seats	
7	305

Capacity 88 seats at 1c per mile	$ .88
Capacity 192 seats at 1½c per mile	2.88
Capacity 25 beds at 2½c per mile	.62
100 per cent occupancy	4.38
70 per cent occupancy	3.06
60 per cent occupancy	2.63
Annual revenue of day trains, 60 per cent occupancy—1,168,000 train-miles at $2.42 per train-mile	$2,826,560
Annual revenue of night trains, 60 per cent occupancy—292,000 train-miles at $2.63 per train-mile	767,960
Annual revenue of New Era trains, exclusive of baggage, mail, express	$3,594,520
Direct and fully apportioned annual expense, 1,460,000 miles at $2.05 per mile	2,993,000
Net income, exclusive of head-end revenue	601,520

At 70 per cent occupancy, the estimate of the traffic department, the net income would be $1,205,960, exclusive of head-end revenue.

PRESIDENT HARRIHILL: Your financial summary is the biggest gun we'll have in getting the money we need.

COMPTROLLER BOND: The figures are favorable enough. Could be bettered by dispensing with nonrevenue equipment. Doubt necessity for lounge-washroom car on short overnight run. Doubt need for club-recreation car on day trains at cent a mile. With only 48 seats, couldn't take care much of the many passengers anyway. But I've talked to Lionel and Tom about it and we can't see eye to eye.

VICE-PRESIDENT TONNAGE: Yes, Mr. Harrihill, we've gone all over the subject of nonrevenue equipment. It isn't a matter of necessity. It *is* a matter of offering the public *more*. On overnight coach trains, I have observed that early risers have no place to go, with the result that they disturb those who want to sleep or they overcrowd limited washroom facilities. Passengers traveling light could take their bags to lounge-washroom, make a leisurely toilet, have a smoke and leave the train from this car, fit and happy. As to the club-recreation car—a normal expectancy would be for a turnover in occupancy so that between a hundred and two hundred passengers would enjoy its benefits. The trouble is, we have gotten into the habit of thinking we should have revenue passengers in every seat, including the toilets. Let's give our patrons some room to turn around in.

PASSENGER TRAFFIC MANAGER TABLE: There's one thing you didn't mention, boss—that is the strong sales and advertising value these nonrevenue cars would have. They're loaded with talking points.

MR. HARRIHILL: I think I get your respective viewpoints. What decides me in favor of the traffic department is the fact that with the proposed fares we have a reasonable expectancy of being able to absorb the cost of operating these nonrevenue cars and still make a reasonable profit. Now this is just what we want to do. Give the public as much as we can and earn a reasonable return. And talking about the public, it seems to me, with the sweeping advancements we're planning, that the press bureau of the public relations department should find the newspapers eager for the New Era story. How about it, Mr. Goodwillie?

PUBLIC RELATIONS DIRECTOR GOODWILLIE: I think the Chief is indulging in a little leg-pulling. He is as familiar as I am with the high value of free publicity and also its limitations. Yes, there will be a newsworthy story in our New Era service—not only transportation but the future economy will be affected—and we will tell the men and women of the press about it. They'll want copy. It's our job to make it

easy for them to get. They'll probably want interviews with our executives, revenue figures, pictures, background material that I know you'll all cooperate in giving them. We'll also have the newsreel people, radio stations, independent feature writers and the news associations to service. Aside from the phase of passing publicity and the advertising campaign, I see, as a corollary of the New Era service, a tremendous increase in public esteem for our company.

Barring recent overloading, our service on the Eastern division is nothing to make apologies for. That makes our far-reaching improvements and changes so much more creditable. The changes will have a compelling influence on trade and travel habits. I can just hear Mike Agate, that crusty editor of the Coke *Ember* say, "The HC&E is on the track and going places fast." Or that tartar, Mayor Clink of Slagmont saying, "Now you've really got us on the main line." Shippers, connecting railroads, merchants, farmers, housewives, educators, students—and the last mentioned are mighty important to our future—will be interested and impressed. The results will not only be reflected in future passenger and freight revenues, but will be of inestimable value in that intangible asset known as *good will.*

PRESIDENT HARRIHILL: Peace on earth and Goodwillie! Amen. Now about the advertising campaign, Mr. Milline. Tell us how we are going to apply it, and how much we are going to pay for it.

ADVERTISING MANAGER MILLINE: That's quite an assignment, Mr. Harrihill. Our advertising plans, like the trains, are still in the embryonic stage. Mr. Tonnage, Mr. Table and I have had several meetings with our advertising agency on the subject of New Era promotion. The objective is, of course, to familiarize every man, woman and child with our revolutionary type of rail service. What a startling story we'll have!

"HC&E introduces New Era service . . . *Economy*—$4, Steelton to Hub City! . . . *Comfort*—a new era in travel ease! . . . *Speed*—only five hours en route! . . . *Convenience*—five trains a day each way!" The young folks will say: "Dad, you can take the car and go touring. We'll take the train and go to town."

We will decide on what sized advertising task-force is needed. In our task force, we will employ every advertising weapon available to catch the eye and ear of the public.

VICE-PRESIDENT RETARDER: No pin-up girls—nothing rococo, I hope, Martin.

ADVERTISING MANAGER MILLINE: No, sir, but I trust you wouldn't object to the Dionne Quints. Five girls, five names, five trains. But seriously, showmanship in staging exhibits and in stimulating interest in the initial runs of each train is important. The first impact should be followed up by sustained advertising concentrated in the areas where most of our traffic originates or should originate. So I would rather look at the campaign as a year's program than just a flash in the pan.

Normally we spend about $60,000 a year advertising our service on the Eastern Division. To introduce and advertise our New Era service for the first year, I would say would call for something like $200,000. This would be less than five per cent of the minimum estimated revenue. In subsequent years, I believe we should earmark in our general appropriation about half this amount, say $100,000 for this service. In the meantime we'll have plenty to do—evolving appropriate names for the individual trains, cars, and the new servicing features; familiarizing ourselves with the mechanical advancements and keeping abreast of the changes Mr. Clearblock spoke of. It's a big, exacting job, but one that any advertising man would relish.

PRESIDENT HARRIHILL: Thank you, Martin. Summing up, our coordinated operations will provide service with the four ingredients essential to drawing volume traffic to our railroad —economy, speed, convenience, comfort. At least, that's our united opinion as railroad men. But to get the traveler's point of view we have with us, as my special guest, the gentleman whom I referred to as "the stranger in our midst." He is none other than my old, old friend, Mr. Alex Drummer, who for 40 years traveled over 50,000 miles annually in Eastern Division territory. Mr. Drummer is retired and I asked him here today to get his reaction to our concepts. Mr. Drummer, may we have a word from you?

MR. DRUMMER: With pleasure, Charlie. The service appeals tae me mainly because of the frequent schedules; thrift appeal is awa' too much for me. I jest canna rrressit it. So the morn the first New Era trains pulls oot you'll find me aboard.

PRESIDENT HARRIHILL: To *you* will go the honor of buying the first ticket! Gentlemen, the meeting is adjourned.

New York Central 4-8-2

Newest of motive power on the New York Central is the class L-4b 4-8-2, 25 of which were built early this year by Lima Locomotive Works. These are almost identical to the 25 L-4a engines built a year earlier by Lima. All 50 are numbered consecutively in the 3100 series, starting with No. 3100. It is this class of power which has the characteristics needed to pull fast freight between Chicago and New York on Twentieth Century schedule, if such performance should ever be commercially feasible.

The 4-8-2 wheel arrangement is not new to the New York Central roster. An experimental locomotive of this wheel arrangement was built for the road in 1924 by the American Locomotive Company. By 1929, 300 of the type were in service. Of course the "water level route" could not well have locomotives of Mountain type so they were called Mohawks, and this name is still used on NYC to designate 4-8-2 arrangement. The basic reason for this type of locomotive was to provide higher sustained horsepower, so as to pull freight trains at higher scheduled speeds than was possible with the older Mikado types. The later Mohawks, classes L-3a and L-4, are commonly used in passenger service and are often seen on heavy mainliners such as the *Century* and the *Commodore*. Class L-3b is for freight only.

In the earlier designs tender space was provided for 18 tons of coal. In the L-2's this was increased to 28 tons, quite a big load. But with the L-3's a special attempt was made to increase the length of engine run without refueling and coal space was upped to 43 tons. On the latest batch it is 42 tons. This is enough to operate a heavy passenger train through between Chicago and New York with only one intermediate coaling stop.

Specifications:

Road classification	L-4b
Road numbers	3125-3149
Tractive effort, lbs.	59,900
Cylinder diameter and stroke, in.	26 x 30
Driver diameter, in.	72
Weight on leading truck, lbs.	74,900
Weight on drivers, lbs.	266,500
Weight on trailing truck, lbs.	59,700
Weight of engine, lbs.	401,100
Weight of tender, lbs. (2/3 load)	309,400
Boiler pressure, lbs.	250
Grate area, sq. ft.	75.3
Evaporative heating surface, sq. ft.	4676
Superheating surface, sq. ft.	2103
Tender capacity: Gallons of water	15,200
Tons of coal	42

Otto C. Perry.

Main Line of the Narrow Gauge

BY HAROLD M. MAYER

Modernized passenger equipment rides the Rio Grande three-foot rails over Cumbres Pass.

Crossing and recrossing the Colorado - New Mexico border, the Durango - Alamosa line of the Denver & Rio Grande Western Railroad is today the most important remnant of the once-great system of narrow-gauge railroads which wound through the canyons and over the mountain passes to the most remote mining camps and settlements of the Colorado Rockies. The line between Durango and Alamosa, almost exactly 200 miles in length, is the main line of the Alamosa Division of the Rio Grande and has the only passenger trains operating any of the narrow-gauge lines in Colorado.

No weed-hidden jerry-built branch is this line; it is built to mainline standards, with heavy ballast, rails as heavy as on many standard-gauge lines and it operates on schedules as rigidly maintained as any main line. Only in track gauge and in the shorter radius curves permitted by the narrower gauge does this line exhibit diverging characteristics.

Built during the narrow-gauge fever and mining boom of the '80's, the line has long since seen its most prosperous days. Today it is but a feeder to the standard-gauge lines of its owner system. Carrying no through transcontinental freight, practically no tourists and differing in gauge from the lines with which it interchanges traffic, the route is definitely off the beaten track. Yet along it is some of the most magnificent scenery to be seen anywhere. The small volume of passenger business is due not to a lack of interesting sights or places, but to lack of accessibility from other routes and lack of publicity. Perhaps this very deficiency, however, is one of the great assets of the line for the occasional traveler who ventures far from the main routes in search of the unusual.

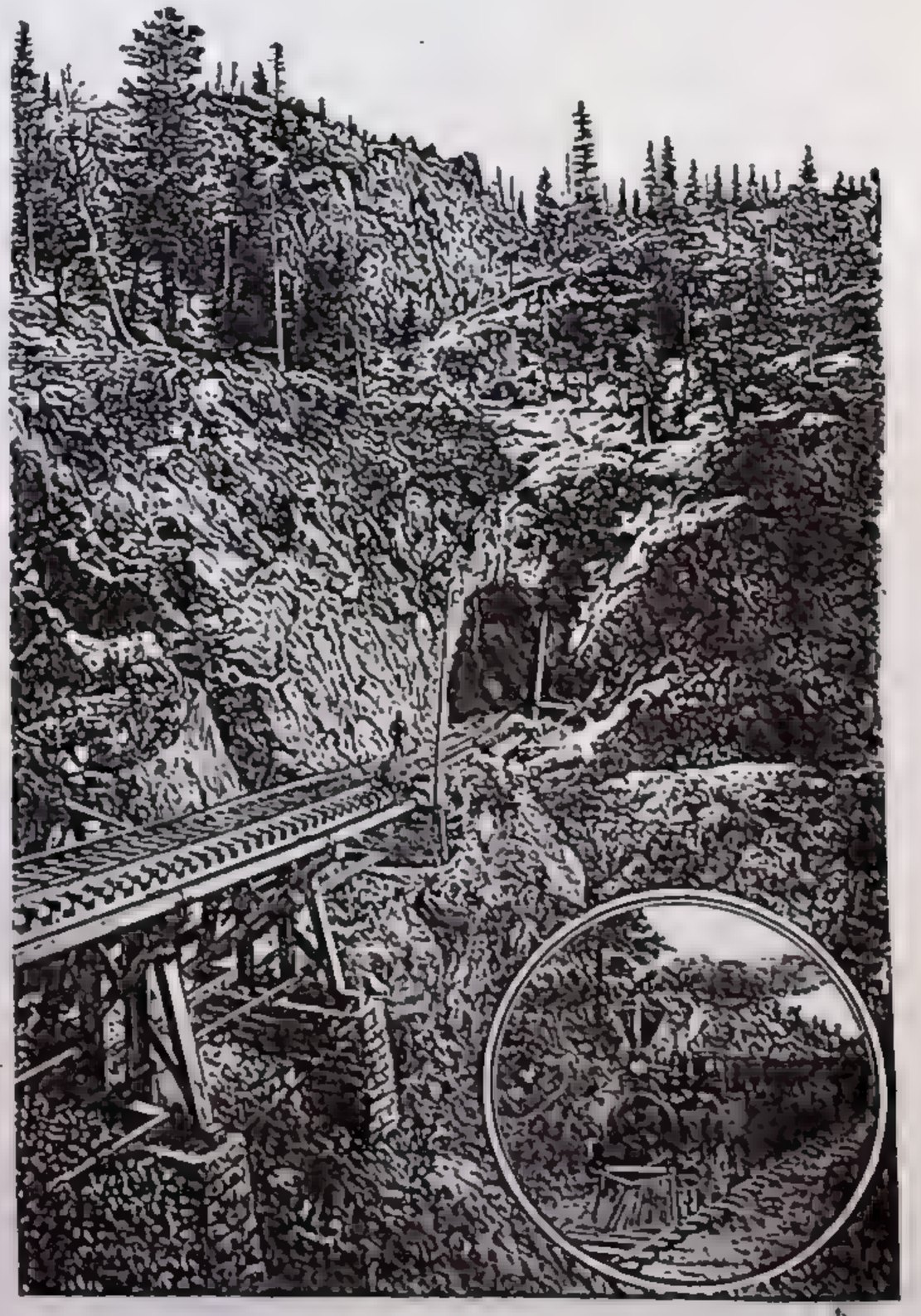
Though remote, travel between Durango and Alamosa is far from uncomfortable. A daily passenger train in each direction provides amenities fully the equal of those on any trains except the better-known flyers. Yet combined with comfort is a subtle charm which always accompanies the old.

Looking over the train, one is struck with the combination of age and modernity. The

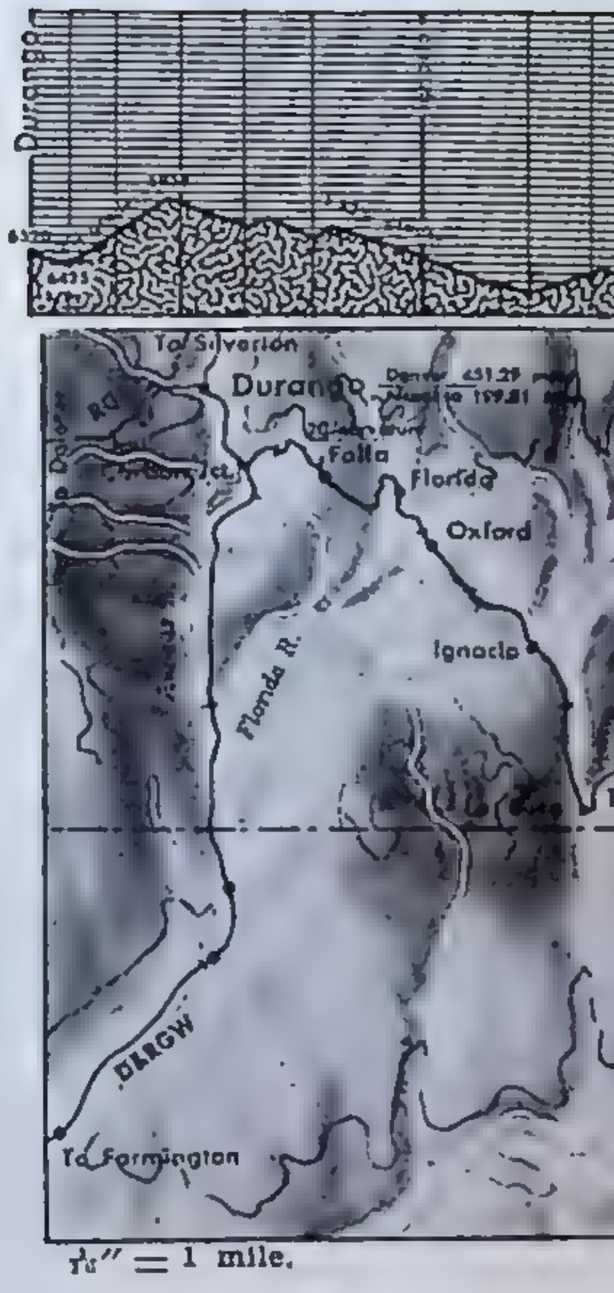
Otto C. Perry, Denver, Colo.

A westbound freight train approaches the last hairpin turn before the summit at Cumbres (opposite page). Notice the three levels of track. Above, the San Juan approaches Cumbres from the west on the 4 per cent grade. Few successful photos have ever been made of the Toltec Gorge near Cumbres. The old engraving below is of Toltec Tunnel, high on the cliff-side. The only two tunnels on D&RGW's narrow lines are at Toltec.

locomotive is relatively new and well maintained. It seems out of proportion because the track gauge has necessitated placing of the drive wheels inside the frames, with the counterbalances on the outside. Even more noticeable are the large overhanging boiler and the tall stack with its conspicuous smoke arrester. Behind the locomotive are several mail, baggage, express, and railway postoffice cars, their age revealed by the short, stubby proportions of the car bodies, the old-fashioned railroad roofs cut with glass transoms and the wood-planked exterior. Behind these are the passenger coaches, usually two or three. These coaches, like the head-end cars, are of wood with planked exteriors and transomed roofs. They have no large underframes and on each end is an enclosed-platform vestibule, standard except for size. The cars are resplendent in green paint with conspicuous gilt lettering. The more modern interiors are as well painted as the exteriors. Seating is of the rotating type with sponge-rubber cushions, reclining chairs, each attractively upholstered in a different color. The seats are arranged two on one side, one on the other because of the narrow width of



William Moedinger Jr., 23 E. Vine St., Lancaster, Pa.



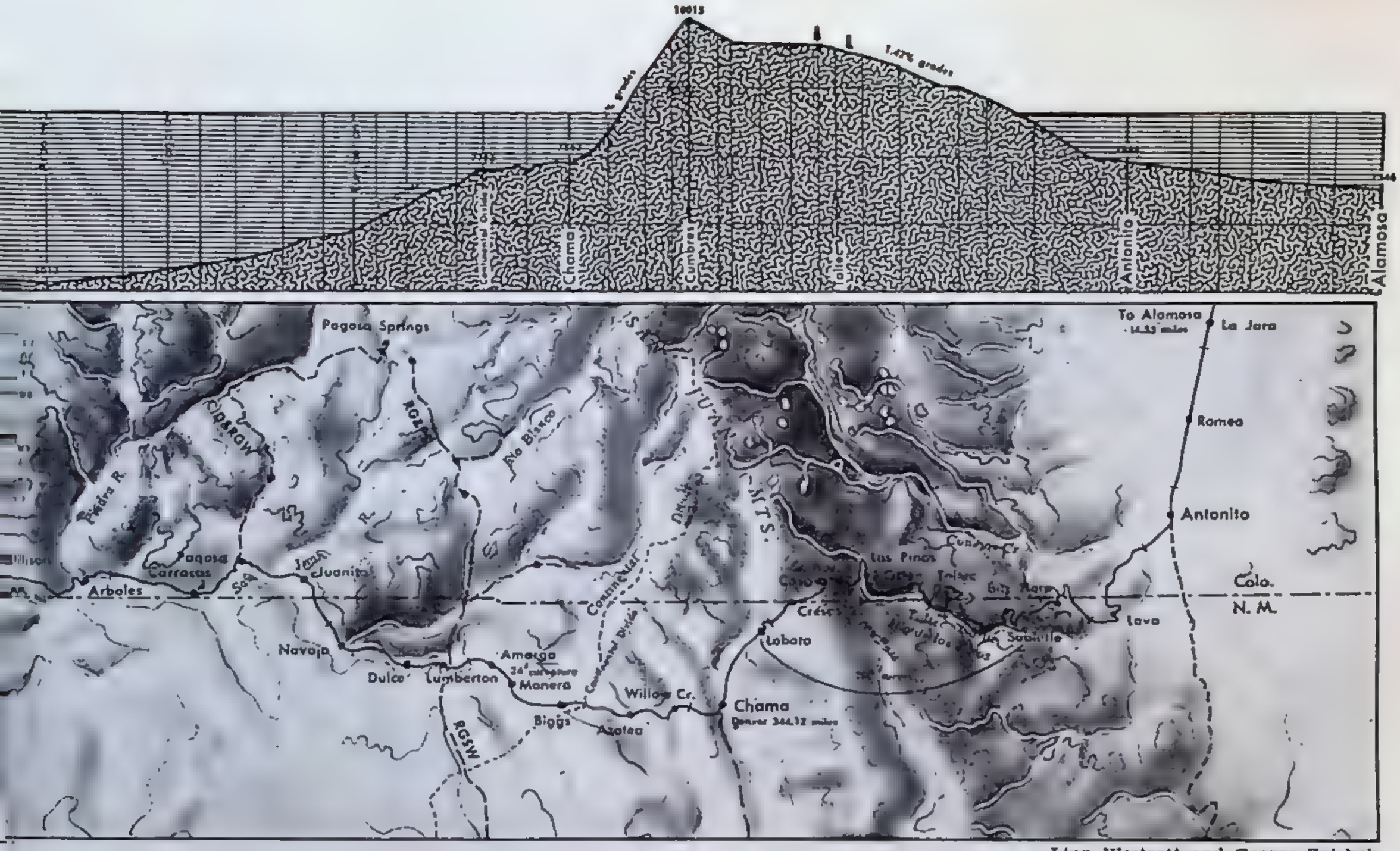
the cars. Lounge settees placed longitudinally in the center reduce the otherwise regimented effect. The lighting is by a series of modern bullet-type electric lamps. The interior finish is the natural oak of the car body. All in all, the effect is one of subdued charm and solid comfort, the only incongruous note being a sheet-iron stove. Inquiry regarding its function will elicit the response, "What are we to do in midwinter when caught in snowdrifts with the engine cut off trying to break through?"

Most unexpected on a remote narrow-gauge line is the parlor car at the rear end of the train. Of these there are three, named for the three most important points on the line: Durango, Chama, and Alamosa. The exteriors are not unlike those of the coaches except for the open platform at the rear end with its iron railing and conspicuous hand brake. Passengers who have indulged in the luxury of a seat ticket are met at the step by an immaculately attired porter, who will immediately show off the fine points of the car's interior with paternal pride. At the forward end is a kitchen, fitted in stainless steel and with cooking equipment fully comparable with that on any standard dining car. A single table at the forward end seats four persons for meals. The rest of the car is furnished with standard rotating parlor-car chairs. The car is carpeted, and lighting and interior finish are similar to that of the coaches. At the rear are plate-glass windows which open out on the platform. On the tail gate is an illuminated sign bearing the name *San Juan.* This is the only narrow-gauge named train in America.

Durango, western terminus of the line, is the Chicago of the narrow-gauge. From the min-

Robert McKell, Chillicothe, Ohio.

The San Juan and a freight meet on the siding just east of Cumbres summit, 10,003 feet above sea level and about two miles north of the New Mexico state line. Near the Cumbres station (above) is a wye for turning helper engines.



Linn Westcott and George Zalchek.

ing region of the San Miguel Mountains comes the little Rio Grande Southern, with its traffic of ores, livestock and produce; from the San Juan Mining Region comes the Silverton branch, carrying ore concentrates; from Farmington, N. Mex., comes a branch which brings livestock and pinto beans. These three lines all feed traffic to the Durango-Alamosa line, which interchanges it with the standard-gauge line to the east at Alamosa. A large roundhouse, shops, and a yard at Durango constitute the hub of the narrow-gauge. Here one may see a variety of equipment which approaches that on standard railroads: mail, baggage, express cars, coaches, parlor cars, box cars, gondolas, refrigerator cars and even privately-owned tank cars.

Leaving Durango, the line traverses the intensely irrigated truck gardens around the town and climbs into the sage-brush desert along the New Mexico border. This desert, though not spectacular, is full of interest. Here and there one may find a herd of sheep, a lone Apache or Ute Indian on horseback, or a secluded cluster of houses surrounding a colorful adobe church built in Spanish Mission style. At Ignacio, just north of the New Mexico border, is a large Indian school maintained by the government. Interesting geological formations also relieve the monotony of the desert. Monero Canyon is a shallow canyon cut by the desert streams in a series of brilliantly colored stratified rocks, which have eroded into fantastic pillars and arches. At Carracas the eastbound and westbound passenger trains meet, this being carried out with as little confusion as on any main line. At Chama, N. Mex., the train is serviced and the few minutes permit one to view the interesting crowd of onlookers at the station: Mexicans, Spaniards, Utes and Apaches; cattle ranchers, sheep herders and those with no occupation; those who read English, those who read Spanish and those who do not read. All signs are bilingual.

As the train hesitates at way stations along the route, Indian children hurry aboard to buy cake, ice cream, or newspapers from the parlor-car porter and quickly depart. This daily train is their only contact with the outside world.

The crossing of the San Juan Mountains, between Chama and Antonito, is one of the most spectacular stretches of railroad to be found on any main line. Here are Cumbres Pass and Toltec Gorge, fully as scenic and rugged as Tennessee Pass or the Royal Gorge—perhaps even more so because of the steeper grades and sharper turns which can be constructed only on narrow-gauge lines.

Scarcely out of Chama, the eastbound train climbs at a snail's pace up a four per cent grade. The puffing of the locomotive echoes through the hills as the train snakes its way around sharp curves, some of them horseshoes, others complete loops. At one place four different levels of parallel track are visible at once as the train

First puffs on

Denver & Rio Grande Western.

200-mile run.

From Alamosa to Durango is an all-day outing, but it is one of the most interesting trips offered by a railroad. As the train passes between the mountain and desert stations the people of the land seem to appear out of nothing where only wasteland stood a moment before. Settlers live far apart and the train is their only regular connection with the outer world.

gains altitude. Snow fences and windbreaks of tall trees shelter the railroad from the winter snows. The country here is not rugged or deeply dissected; the hills are rolling and subdued with no mass vistas as in some other mountain crossings. Almost everywhere the railroad is at the lowest point to be seen and the view is sideways and upward. The vegetation is open and relatively sparse. As altitude is gained, the pinon and juniper of the lower slope give way to deciduous trees, then to aspen, then tall and stately Engelmann spruce. So gradual is the transition that one scarcely notices when timberline is neared. Here the trees are short and stubby and the dominant note in the landscape is short grass, with an occasional sheep herder tending his flock. Occasionally the train must pause while a contrary lamb is urged and cajoled to forsake his grazing between the ties. In other places, where the upper forests are closer to the railroad, beaver dams and lakes are to be seen and often the locomotive whistle will send a deer, or even bear, scurrying across the track in front of the train.

Almost imperceptibly the summit is reached and the train hesitates. A sign on the little station announces that the location is 10,000 feet above sea level, yet the hills are so subdued that only the type and sparseness of vegetation and the chill of the atmosphere betray that fact. However, the long steady climb and the circuitous route also make one readily conscious that the train has indeed climbed thousands of feet. In the 14 miles from Chama to the summit of Cumbres Pass, the road climbs 2152 feet, or nearly 160 feet per mile. Yet nowhere on the west slope is there an embankment or ledge, and the one trestle is at Lobato. Elsewhere the line appears to be on a rolling plain.

Contrary to general belief, the summit of Cumbres Pass is not on the Continental Divide. The pass is at the summit of the San Juan Mountains, which are several miles to the east of the divide along the railroad route. The actual point at which the railroad crosses the divide is on the desert plateau west of Chama; it is marked by a very inconspicuous sign on the right of way.

Cumbres is a station on the rolling grassland, at the approximate elevation of timberline. A wye just north of the station used for turning the helper engines which push the freight trains over the pass, is covered by a timber snowshed. These and a water tank are the only signs of civilization at the summit of the pass.

How different is the east slope from the west! As the train gathers speed leaving the summit of the pass, the brake shoes spark and the hairpin curves and loops seem much sharper. It soon becomes evident that the east slope is far more rugged than the west, although actually the railroad's grades are easier. Rushing streams erode cliffs in the sandstones and conglomerates which border the mountain core. Here and there vertical rock-masses have been eroded into fantastically shaped pillars.

And then the line bursts upon one of the scenic wonders of the world: Toltec Gorge! Perched almost at the upper rim of a vertical cliff, the railroad is carved into the rocks, following the configuration of the gorge's rim, curving into each tributary canyon and crossing it on a high trestle. The pinnacles of jagged rock seem as if they would fall on the train from above, or give way underneath, plunging the tiny train into the deep abyss below. Some of the rocky promontories are so rugged that the railroad can pass them only in tunnels. Far below, a thousand feet or more, the Rio Conejos tumbles over rocky ledges in its rush through the narrow canyon. The rock is eroded into amazing shapes: castles, walls, ledges, needles.

As the late afternoon sunlight filters through into the gorge, it outlines the amazing rock formations in bold relief, throwing deep shadows into the depth of the chasm. The afternoon rain, which is almost inevitable, catches the slanting beams of sunlight and creates indescribably beautiful rainbows which seem to rise out of the black depths of the canyon. Then the sunset over the gorge sets it on fire, glowing with purple, red, violet and deep blue. No pictures are known to exist of Toltec Gorge at sunset; no picture can possibly convey the slightest impression of its magnificence.

One turn in the right of way sends the railroad up the rim of a tributary canyon, then at the head of the canyon it plunges boldly across the upland. A few minutes later the train suddenly emerges upon a very wide, flat plain, bursting into a riot of golden yellow from millions of sunflowers. This is the San Luis alley, one of the garden spots of Intermontaine Colorado. Fifty miles beyond, the rugged Sangre de Cristo Mountains catch the last rays of the fading sunset.

By a series of loops and turns, the railroad descends into the valley, where a long tangent carries the train to Antonito, a trading center

for the farmers and ranchers. From here to Alamosa the line is triple-railed, carrying the narrow-gauge trains from Durango (and, until recently, those from Santa Fe) as well as standard-gauge equipment en route to and from Antonito or La Jara, crossing into the valley from the east via La Veta Pass over the Sangre de Cristo Range. The valley is over 200 miles long, very wide and almost perfectly flat. Potatoes and vegetables are grown in tremendous quantities by irrigation, and long rows of refrigerator cars may be seen on the sidings, waiting to carry these products to eastern markets. Alamosa is the metropolis of the valley, and it is there that the narrow-gauge line reaches the standard-gauge, from which freight can move to the markets of the continent without further transshipment.

Peacetime freight traffic on the Durango-Alamosa line is not very heavy. Ordinarily, all of the business is handled by three freight trains weekly in each direction, run as extras and double-headed or pushed over Cumbres Pass. Principal traffic eastbound consists of livestock, sheep, ore concentrates from the San Juan mountains, and pinto beans, as well as some lumber. Westbound traffic is largely manufactured goods from the East.

A considerable business has developed in the transportation of sheep and cattle between the summer and winter ranges. As the winter approaches, it becomes difficult for the stock to range on the upper mountain slopes and they must be transported to the more protected valleys. Some of these journeys are several hundred miles in length and the railroad provides stock cars for this purpose each winter and spring.

On the whole, while the freight traffic is not heavy, it is important, and most of the goods have relatively high value in proportion to their bulk. This type of traffic, notably ore concentrates, livestock, and perishables, takes a high freight rate.

Passenger traffic is very light. Since the opening a few years ago of the automobile road east from Durango across Wolf Creek Pass, the through passenger traffic has almost disappeared. Bus service between Durango and Alamosa over the new road is several hours faster than the train, which is patronized for the through trip principally by an occasional railfan or a tourist who has happened to learn about the scenic attractions of the route. The parlor car averages less than two passengers per trip. Local passenger traffic patronizing the coaches is somewhat heavier. It consists of cattle or sheep men riding between their ranches and the markets, of Indians from the reservations, and of maintenance-of-way crews riding between their sections. Continuance of passenger service is uneconomical, and abandonment seems probable. With its discontinuance will pass one of the most colorful trains to be found anywhere—a reminder of the past, with its menage of peoples of several races and its equipment of a bygone age, modernized but bearing marks of its ancestry.

Freight service will probably continue for some time, as the roads are very poor in the country between the two terminals, and the diversity of traffic, with high rates, may justify continued operation.

Approaching Cumbres from the west in heavy snows, this train of 30 years ago required six locomotives to make the 4 per cent grade with a plow. It took 13 days to clear 14 miles of track. Often the railroad has saved the lives of considerable livestock when highways are snowed under.

C. R. Lively, 555 8th Ave., Durango, Colo.

Beyond Ellicott's Mills

Oldest main line sees few passenger trains but its two tracks shorten B&O freight route 15 miles

BY E. L. THOMPSON

HISTORICALLY, one of the most interesting pieces of railroad in America is the Old Main Line of the Baltimore & Ohio, extending westward from Relay, Md., to Point of Rocks, 58 miles. To say that American railroading had its start over this line would be no exaggeration.

But the Old Main is more than a historical piece of railroad. From an average mediocre freight line doing a small business a day, it has come forward with a rush, handling tremendous tonnage of vital war supplies such as oil, coal, tanks and other essentials. As far as possible with an old and crooked piece of mountainous railroad, the line has been streamlined and today heavy freights plod back and forth at the rate of almost two every hour throughout the 24-hour period. Solid trainloads of tankers and 7000 to 8000 tons of coal; these are the hotshots of the Old Main Line. Edward Hungerford, when writing of the line as it was in 1902, said, "They straightened the Old Main." Perhaps they did, but you'd never know it now. Nevertheless, wonders have been done in the past couple of years. Automatic block signals have replaced the old manual blocks (block offices were as far apart as 35 miles in one locality); a brand-new coaling station has been placed in service near Ellicott City; giant 5400-horsepower freight Diesels roar through the Maryland woods, casting their shadows in the tranquil waters of the Patapsco River as their thundering awakens echoes against the hills and rocks; passenger engines help freight trains—this is just a sample of the 1944 edition of the Old Main Line of the B&O.

As previously mentioned, American railroading had its start on the B&O's original Baltimore - Relay - Ellicott's Mills line. Today's Old Main Line is generally considered as starting at Relay, although the actual switches from the main line are located at Halethorpe Tower, 1½ miles east. The B&O first placed its rails at this point in April, 1829.

Let's go back further than this for a brief resumé of the history familiar to most railfans. The B&O was chartered on February 28, 1827, but the examination of the surrounding country was not begun until July 2. It was the following April before a report on the proposed routes was rendered, and work started almost immediately. July 4, 1828, saw the laying of the first stone of the railroad, with the now-famous speech of Charles Carroll of Carrollton, then the last living signer of the Declaration of Independence, in which he declared: "I consider this among the most important acts of my life, second only to that of the signing of the Declaration of Independence, if even second to that."

Baltimore & Ohio.

From near Baltimore to Mount Airy the Old Main follows the beautiful Patapsco River in a deep ravine.

Following the completion of the line to Relay, work immediately went forward on the next link to Ellicott's Mills, this point being reached on May 24, 1830. Frederick first saw the B&O December 1, 1831, and Point of Rocks was reached April 1, 1832. Thus the entire Old Main Line was built, almost as it is today, more than 112 years ago.

What is now Mount Airy summit was known as Parr's Ridge in those days and the original crossing of the ridge was effected by the use of four planes. In 1834 it was decided to abandon the planes, and in 1838 a new line was opened looping through the town of Mount Airy. In 1902 a third line was built in this vicinity.

At the time the B&O was building, the people of Frederick did not want the line to go through their city, contending that the noise of the trains would frighten the dogs and children. It didn't take too much protest for the railroad to by-pass the town, primarily because of the Catoctin Mountains immediately west of Frederick. A branch (3.6 miles in length) was run in from what is still known as Frederick Junction and the main line turns southwest to make a 10-mile run to Point of Rocks, on the north bank of the Potomac River. The Old Main was a very crooked piece of line, but nobody seemed to bother about such things in those days. They just built around the hills and paralleled streams wherever possible, following the quickest and least-resisting routes.

The B&O's Metropolitan Branch (Washington to Point of Rocks) was completed in 1867 and went into service a year later. This took some of the burden off the Old Main, since it was no longer necessary for passenger trains from Washington to go to Relay before heading westward. This may be termed the first turning point in the history of the Old Main, as from then on its traffic eased off. Nevertheless, in 1902 the railroad made many drastic improvements on the line, eliminating some 1700 degrees of curvature, constructing several tunnels and building both the Adamstown and Mount Airy cutoffs.

During the big freight and passenger boom of the '20's, practically every line in the country did business, but with the depression of the next decade the Old Main fell to a rather low standard. Weeds grew between the tracks, towers were abandoned, the Adamstown Cutoff became a storage track, passenger trains came off one by one, and freight traffic fell to as low as half a dozen trains a day. With the beginning of the present war, however, the Old Main drew new blood. The hills once again resounded to the constant chug of the steam engine, and persons who had retired to the quiet countryside suddenly began to realize that here was a new railroad—not a third-rate branch line but a real A-1 railroad geared to move material and men 24 hours a day.

The line totals 57.5 miles, all double track, when moving by way of the Mount Airy Cutoff; via Mount Airy proper it is 58.0 miles, with the four miles between Watersville Junction and Mount Airy Junction single-tracked. (This was also double track until several years ago.) The line is rock-ballasted throughout and 130-pound rail predominates. Block signals (com-

Optional routes

For the benefit of those who must travel but who cannot get accommodations by their usual route, TRAINS each month will print a brief listing and survey of available routes between larger cities.

Chicago and St. Paul-Minneapolis:
More and better railroad service is available between Chicago and the Twin Cities than between any comparable cities as much as 400 miles apart. The Burlington, the Milwaukee, and the North Western share almost all of the through business and run a total of five streamliners each way daily, so staggered that daytime streamliner departures from Chicago, for instance, are at 9, 10:30, 1, 2:45 and 4, an unusually wide choice of schedules for some of the fastest trains in the world. Including the locals, the overnight trains, and the service on three other railroads which also operate reasonably direct service, 42 passenger trains are operated daily in both directions.

Burlington: 2 streamliners each way, 1 day local, 3 overnight trains.

Chicago Great Western: 1 overnight train each way on slower than competitive schedule, sleeper only part way.

North Western: 1 streamliner, via Milwaukee, 1 day local via Madison, 1 overnight train via Milwaukee, 1 overnight train via Madison.

Milwaukee: 2 streamliners, 1 day local each way, 2 overnight trains westbound, 3 eastbound, all via main line; 1 overnight train westbound via Calmar and Austin, 1 overnight train and 1 day local eastbound via Calmar and Austin.

Rock Island: 1 overnight train each way on slower than competitive schedule; no through sleeping-car service.

Soo Line: 1 overnight train, 1 local each way; slower than competitive schedule.

Note: Unless otherwise mentioned, overnight trains are assumed to carry through sleeping cars.

pleted in March, 1944) are of the upper-quadrant type and are spaced at approximately two-mile intervals.

The standard type of steam power is the Q-4 Mikado. The line will take any engine the road owns, but the curvature is not exactly suited for good riding qualities to the S-1 Santa Fe type and the many Mallets. The big new freight Diesels also operate on this line, and all passenger traffic (now only one local each way a day over most of the line) is handled with gas-electric cars. Tonnage is prescribed as 2700 for a single Q-4 in either direction but in drag service the average generally runs around 3000. Diesel ratings are 5250 east and 5000 west in fast freight service, and full tonnage is 8750 east and 6150 west.

Speed limits are 40 miles per hour for passenger trains and 30 miles per hour for freight, with many exceptions (freights are also allowed 40 miles per hour between Frederick Junction and Point of Rocks). Before the new signals were installed, passenger trains between Relay and Mount Airy gave the dispatchers many a headache, with hardly any block stations and invariably a freight in the block ahead. Diverse movements were the order of the day and it was seldom that No. 47 made its western terminus on time.

Freight trains consume upwards of 2½ hours for the eastbound run, westbound about 10 minutes longer. However, fast freights frequently negotiate the line in either direction in 2¼ hours, and two hours is not unheard of.

To many persons looking over a map of the Old Main, the question often arises as to why through passenger trains which do not have to pass through Washington do not make use of this line. Now, with all of the freight moving, it is good business to keep the line exclusively for that type of movements, but passenger traffic was a possibility back in the '30's. However, the line is not adapted to passenger traffic and aside from detouring all such traffic over the Old Main several years ago, no important first-class trains have been on it since the railfan excursion from New York to Harpers Ferry in 1938. Presumably about the same running time could be made as if operating by the Washington Branch, the wye and the Metropolitan Branch, which route is 11.8 miles longer. If moving via the Union Station in Washington, the difference would be an additional 2½ miles, and still more if backing into the city.

Lime Kiln is the first station west of Frederick Junction, where the railroad breaks away from the valleys and runs cross-country. This freight is high-balling on the left-hand main toward Point of Rocks.

The general direction of the line might be termed east and west. The Patapsco River is followed from Relay to a point in the vicinity of Marriottsville, originally defined as the "Forks of the Patapsco." Then the line pursues the South Branch of the Patapsco nearly to the summit. Bush Creek is paralleled from Mount Airy Junction to Frederick Junction, where the Monocacy River is crossed, after which the rails run cross-country to Point of Rocks.

The grade can best be described as climbing to the summit of Mount Airy, descending to Frederick Junction and rolling for the balance of the route. Going into more detail, we find level track getting away from Relay, with fluctuating rises from .2 per cent to .38 per cent almost to Sykesville. Here the line ascends at .7 per cent for a short distance to Gaither, there to ease off again and eventually settle into a .5 per cent grade until the last four miles to Mount Airy Tunnel, where the ascent becomes .84 per cent. (Via the Old Line, the grade is 1.54 per cent for the last two miles to Mount Airy and then descends at 1.48 per cent for the succeeding two miles.) The summit is just east of the tunnel and the line drops steadily to Monrovia at .8 per cent, easing off to .68 per cent and followed by .4 per cent almost to the bottom of the sag at the Monocacy River. Next come the undulating grades to Point of Rocks, ranging as steep as .43 per cent westbound and .58 per cents eastbound.

The line begins on the north side of t

Baltimore & Ohi

Patapsco River, but crosses over at Ilchester and follows the south side to Daniels. Between there and Davis the river is crossed twice. The south bank is hugged to Henryton, where the line again jumps to the north side and stays there almost to Watersville, except for a short double crossing near Gaither. The line is subsequently on the south side of Bush Creek until just beyond Bartholow, where it passes over to the north side. Between Ijamsville and Reels Mill the creek is crossed four more times.

Of the line's nine tunnels, only three are over 1000 feet in length. First comes Ilchester (1404 feet), followed by Union Dam (810 feet) just before Hollofield. Dorsey (1025 feet) and Davis (497 feet) come between Daniels and Davis, then Henryton (430 feet) and short Sykesville (240 feet). Woodbine isn't much longer (306 feet), followed by the longest of them all, Mount Airy (totaling 2757½ feet). Just west of Ijamsville is the last tunnel, Hartman (250 feet). Without these tunnels, each of which represents the elimination of numerous sharp curves and steep grades, the line would be formidable for trains of today.

Curves on the line are both plentiful and sharp. In the vicinity of Ellicott City, curves of 10, 5, 14, 11 and 10 degrees lie in succession. Until Sykesville is passed, 10-degree curves are quite multitudinous, but beyond that point 7 degrees is the sharpest, with the exception of several 8- and 9-degree curves near Ijamsville. The Old Main, via the cutoff, totals 57.5 miles, and 42 curves lie in the first 10

miles, 38 in the next 10 miles, 33 in the next, 15 in the next, 27 in the next, and 16 over the balance—a total of 171 curves, or an average of about three in each mile for the entire distance.

Five years ago continuous intermediate telegraph offices were maintained only at Mount Airy Junction and Frederick Junction. Day offices operated at both Woodbine and Monrovia, with a one-trick night office at Gaither. Thus, for eight hours (4 p. m. to midnight) no communication existed between Halethorpe and Mount Airy Junction. But the war changed all of this. Gaither was made a continuous office, a similar office was established at Alberton (now Daniels), and finally another office was created at Gray. This gave five intermediate continuous offices, with two additional one-trick "day" offices.

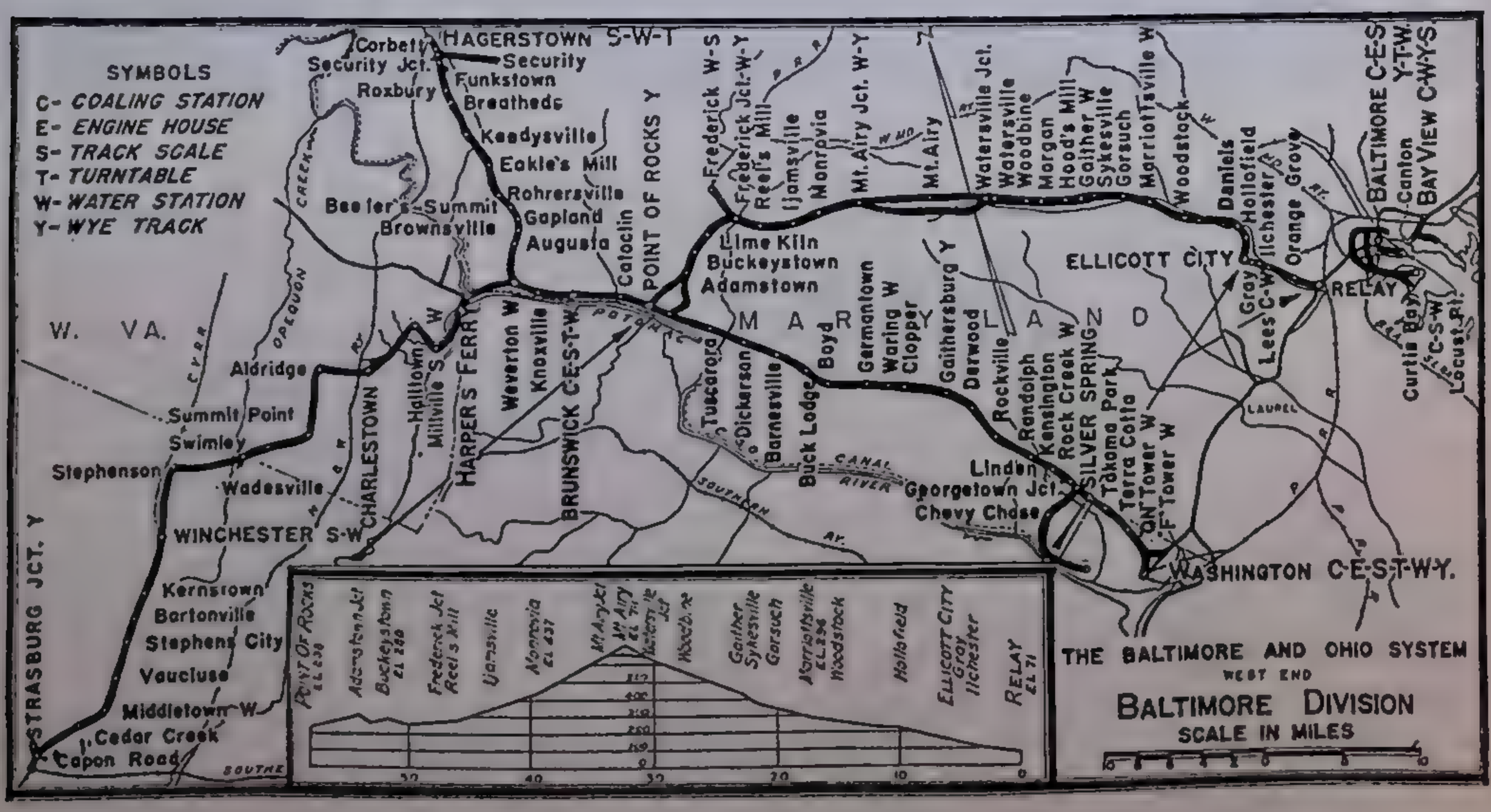
This far from solved the dispatcher's troubles, however. Eastbound, the only passing siding to be found is at Frederick Junction, and as this is capable of holding but 25 cars, it can be counted out for everything except the way freight. The siding at Gaither was restored, but this accommodates only 60 cars and cannot take many of the present-day trains. Westbound, the Frederick siding will take 26 cars; Gaither, 91 cars; and the old HS Cabin siding at Hollofield will hold 112 cars. The Old Line through Mount Airy might be used, but assistance is necessary to make the summit.

A good breakdown, even with the automatic block signals, can really tie up this Old Main. Facing-point crossovers are few and far between, and it is no picnic to back 100 cars of oil to reach the opposing main. Such improvements can still be made on the Old Main, but, on the whole, some fairly good steps have already been taken to make this once again an important line.

Recently I stumbled on to a couple of real thrills, both within half an hour. I was underneath the tracks alongside the Monocacy River at Frederick Junction when a big Diesel with 98 cars roared across, its deafening exhaust vibrating against the Blue Ridge Mountains as it began the ascent of Mount Airy hill with fast freight *New York 94*. A few minutes later, 82 cars of coal rolled overhead, with one Q-4 at the head end and two more engines of the same type on the rear. Three engines on one train, anywhere, anytime, is a thrill, but when they all have their throttles hooked down in the corner with that kind of tonnage in between them, it is a sight worth seeing.

With this background for a starter, let's take a trip over the line, bring out the high spots.

The Baltimore Division extends from Philadelphia to Harpers Ferry with branches to Hagerstown, Md., Strasburg, Va., and the Old Main via Mount Airy. Since Washington is an important stopover point, all through passenger trains go that way, but many freight trains go via the Old Main, giving the B&O the equivalent of a four-track main as far as Point of Rocks.

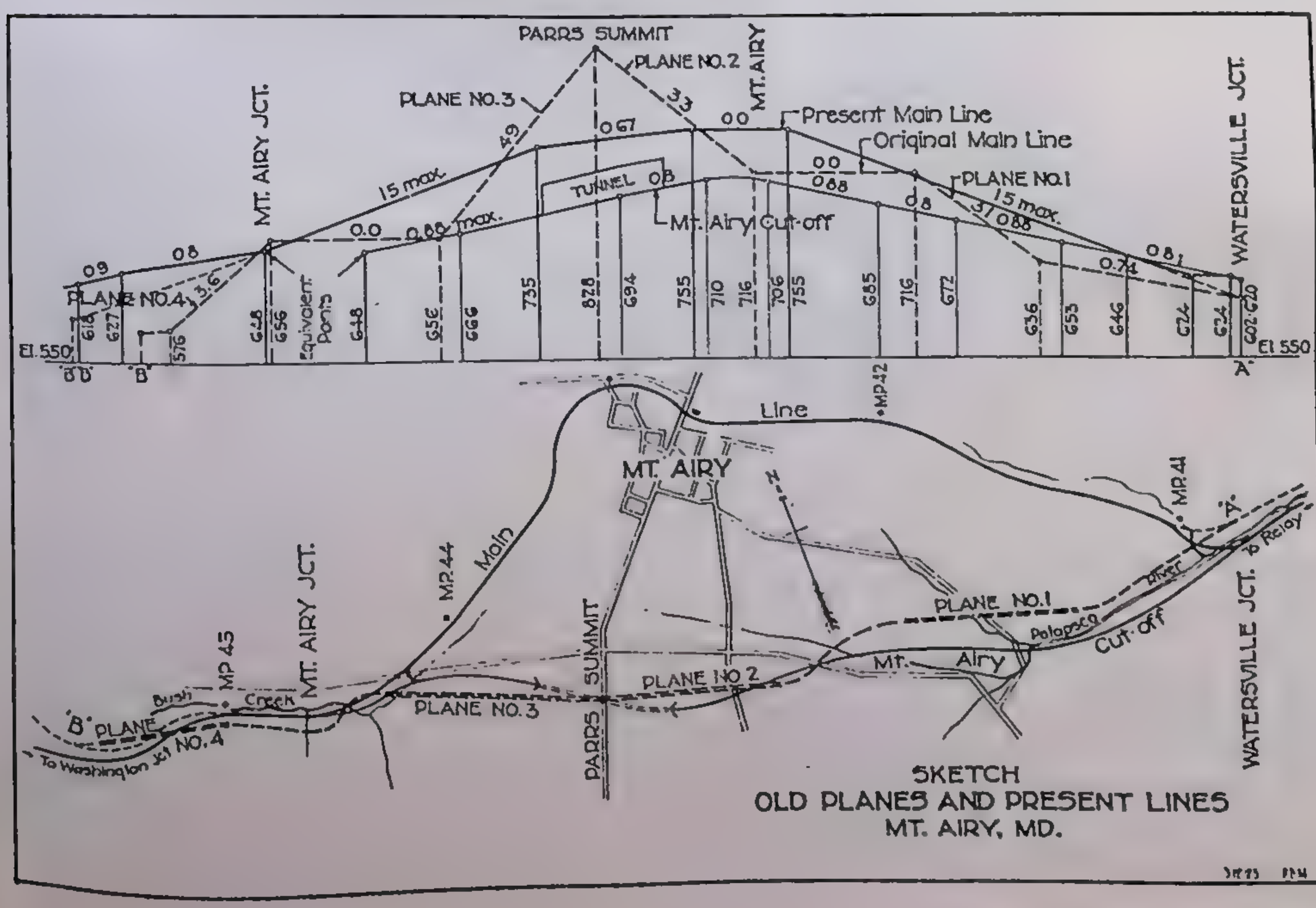


At Relay, the Washington Branch, completed in 1835, diverges south and passes over the historic Thomas Viaduct, which still carries the heaviest trains without a murmur after 109 years of continuous service. Here also is the monument which the builder erected to himself, since he felt the bridge would stand for years to come.

Our trip takes us up the Patapsco as we wind around some rather sharp curves (we are on the original roadbed here), but soon we duck into the first tunnel to emerge and cross the Patapsco River at Ilchester. This was the location of the first of the 1902 major changes in alignment, and the old bridge abutments can still be seen to the south. Across the river stands a large paper factory. The new 200-ton coaling station at Lees was put into service in the spring of 1944. While the run from Baltimore to Brunswick is not a lengthy one, engines, after being called from Riverside roundhouse, have to run light to pick up their trains at Bay View, Locust Point, Curtis Bay, Mount Clare or Mount Winans, and considerable time is used before the actual run begins. With the long pull up Mount Airy hill, they frequently run short of coal. In addition, some of the freight engines run through from East Side (Philadelphia) and occasionally have had

Top, E. L. Thompson; bottom, Baltimore & Ohio.

Built as Monocacy Station, this 78-year-old building at Frederick Junction was taken down last year and replaced by the modest building in the upper picture. Below are profiles and a plan of the three railroad alignments over the summit at Mount Airy.



E. L. Thompson.

to cut off in Baltimore yards for coal. The Lees coaling wharf has alleviated this. Just beyond is Gray, a water station, and until the installation of the new block signals this was the first train-order station.

Ellicott City, which back in the early days of the B&O was called Ellicott's Mills, was the first terminus of the line. Ample evidence of its antiquity still remains. The station, built in 1830, is still in use. It was here that engines rested at the completion of their journey from Baltimore. Nearby may be seen the base of the old turntable. While Ellicott City was originally famous for flour, it is now the home of the Doughnut Corporation of America, and quite a bit of carload business rolls out of this plant daily. During the '30's a special switch engine was sent out each evening from Baltimore to pick up these cars.

At Oella is one of the old flour mills, and at Daniels a cotton mill is still in operation. Daniels (formerly Alberton) was originally a train-order station and is just beyond where another of the important changes was made in 1902. Instead of crossing the river, the line formerly followed every bend and swing for longer mileage. Woodstock, home of the seminary of the same name, can be seen on the hill to the right. The original roadbed circled the next hill, on top of which still stands an old stone house, and it is this point the original surveyors called the "Forks of the Patapsco." Sykesville is now the home of the state mental asylum, and a spur swings north climbing the side of the hill for about one mile to this institution.

Gaither is the first telegraph office since Halethorpe, and the tower can be seen on the right in a picturesque wooded section of Maryland. Here we are quite likely to stop for water (unless taken at Lees), for in the 23 miles from Relay we have climbed from 71 to 420 feet, and wound around numerous sharp curves.

From upper left: A tonnage freight rounds the curve at Woodbine. The old station is at Ellicott City, formerly Ellicott's Mills, and it was built 114 years ago when the B&O reached that point. The freight train crossing Monocacy River bridge is approaching Frederick Junction to take water (bottom). On the facing page helper engines push behind a long freight near Frederick Junction. Helpers are needed on many trains as far as the summit, where grades approaching one per cent are found. They turn on the wye at Mount Airy Junction and return to Frederick Junction for another run.

West of this point, the present line is alternately on and off the old roadbed and, as Woodbine is passed, the curves become easier.

Soon we are at Watersville Junction, a desolate and unidentified location except for a crossover and the old line forking off to the north. If we are on the cutoff, we continue our climb, and shortly before passing under Highway 40 we cross the old Twin Arch, so named because it crosses both the highway and the stream, a novelty in the early days of railroading. And then we are in the tunnel and on the downgrade.

In the meantime the Old Line has swung north through the village of Mount Airy, and the cutoff is rejoined at Mount Airy Junction, another interlocking plant. A wye and a water station at the junction are for the use of helpers which come out from Brunswick, Point of Rocks or Frederick Junction The train moves downgrade to the site of the former station known as Plane No. 4. If we climb down the bank we can see the old station sign hanging from a barn beside the original line. Little trouble is encountered in tracing the old roadbed down to a point near Monrovia, where it again joins the present line. This latter town is the possessor of a day train-order station, and is the only nontower left in service as such after the installation of the new signals.

The Monocacy River is crossed at an elevation of 267 feet and Frederick Junction is reached. During the past year the antiquated station has been torn down and in its place stands a handsome telegraph and block office. On the wye track for the line to and from Frederick, helpers can frequently be seen waiting to push a tonnage train up to Mount Airy Tunnel. Water plugs are located on both sides of the tracks and many of the eastbound tonnage trains stop here before beginning their battle with the hill.

A spur at Lime Kiln bears left into Buckeystown proper; the main lines does not pass through the town. Adamstown Junction lies just beyond. To offset the .58 per cent climb from Point of Rocks east to this point, the Adamstown Cutoff was built in 1902, carrying a

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steady grade of slightly less than 16 feet to the mile. This avoided the use of helper engines until reaching Frederick Junction and the main part of the hill. For a long while the cutoff was completely out of service, but now part of it is open for emergency purposes.

We soon come in sight of the end of our journey. The sign on the station reads "Point of Rocks," but this quaint building no longer echoes to the steady tramp of passengers' feet. Only one through train a day stops here and that is primarily for mail and express. A wye connects the Old Main with the Metropolitan Branch, and a large interlocking plant is also found here. Contrary to what might be expected by glancing at the map, the line from Brunswick to Frederick Junction and east is the "straight" route at Point of Rocks and the trains for the line to and from Washington are the ones which must slow down to 30 miles per hour and make the diverging movements. The elevation here is 237 feet, representing a net climb of 166 feet from Relay.

SCHEDULED freights are not particularly numerous on the Eastern Region of the B&O, primarily because of multiple track. However, six westbound and five eastbound symbol trains, though not shown in the employees' timetable, do appear in the freight working book. Five sections of No. 97—originating at Curtis Bay, Locust Point and Bay View (all yards around Baltimore), East Side (Philadelphia) and Jersey City (New York)—run west. These trains are humped at Brunswick, together with two sections from Potomac Yard and Washington which come up on the Metropolitan Branch, and put together into trains for various western destinations such as Chicago, Cleveland, Pittsburgh, Cincinnati, Columbus and St. Louis. Also running west is No. 93, which operates overnight from Baltimore to Cumberland. Eastbound are two sections of No. 96 and two sections of No. 94, each destined to East Side and Jersey City respectively, and No. 92, headed for Philadelphia. Also operating on the Old Main is the way freight, which runs west on Monday, Wednesday and Friday and returns east the other days of the week. An extra engine works out as far as Ellicott City and HS Cabin, spotting the cars at Lees coal tipple, working the Doughnut Corporation freight and any other local work which is necessary in that territory.

Of all of these trains, probably the hottest are NY-97 and NY-94. For regular power each draws one of the giant 5400-horsepower freight Diesels. Before the day of the Diesel, they were regularly handled by two Q-4 Mikados, each with an auxiliary tender. Even today, such double-headers are used whenever Diesel power is not available. These trains are given the road. It is not uncommon to see them diverted via the Washington line when the Old Main is congested. Until recently NY-94 regularly moved over the longer route.

In 1940, several typical days gave an average of the following traffic westbound: Four sections of No. 97, with tonnage ranging from 2300 to 4900; No. 93 with 2800 tons; RT-89 (now operating as an extra) with 2900 tons; and three extras with loads varying from 2900 to 4600 tons. Eastbound, three sections of No. 96, ranging from 2400 to 7300 tons; two sections of No. 94 with tonnage of 3500 and 4200; and two extras with 7100 and 7400 tons. This gave a total through movement of 11 westbound and 9 eastbound, or 20 trains excluding the way and work trains.

In the latter part of 1942, business was streaming over the line in good proportions. Westbound were five sections of No. 97 with tonnage ranging from 2500 to 4400; No. 93 with 2900 tons; and RT-89 with 2400 tons. In addition 18 extras, including four tank trains returning to the oil fields, carried tonnage varying from 2300 to 3800. (Westbound tonnages generally run lighter than eastbound because of such a high proportion of empties moving in that direction. For instance, 3800 adjusted tons would represent somewhere around 130 empty tank cars.) It is of interest that of the 18 extras, three were handled by double-headed passenger power, and one such train had 125 cars, about the longest ever run on the Old Main. Eastbound were three sections of No. 96 with tonnage from 2000 to 6800; two sections of No. 94 (one additional section moved via Washington) with tonnage of 3500 to 4500; and 12 extras, including three oil trains, fluctuating from 2000 to 7100 tons. This made a total of 25 west and 17 east, or 42 trains—more than double the number which had moved just two years prior.

Now for a brief look at the Old Main in May, 1944, with the block signals in operation. Westbound were the usual five sections of No. 97, with a tonnage ranging from 2250 to 3400; and No. 93 with 2800 tons. In addition were 16 extras, carrying tonnage from 2150 to 3000. East-

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A way freight at Sykesville.

bound were three sections of No. 96 with from 4000 to 5500 tons; two sections of No. 94, with tonnage of 3500 and 5100; No. 92 with 5400 tons; and 11 extras ranging from 3000 to 8100 tons. The general average of the extra trains was about 5400 tons, which is full tonnage with one helper on Mount Airy hill. Total movement was 22 westbound and 17 eastbound, or 39 for the day. On the succeeding day 24 ran west and 21 east for a total of 45. The next day (a Sunday) showed 21 and 18 respectively, or a total of 39, similar to that of the date first mentioned. From this it can be seen that the daily movements are running around 40 through trains, plus the way freights, work trains and Ellicott City turn-around.

With the aid of the new signals one of the eastbound freight Diesels, handling NY-94 with 98 cars—5104 adjusted tons—covered the Old Main (all the way to Halethorpe) in 2 hours 12 minutes, including an opposing track movement from Mount Airy Junction to Gaither. In the reverse direction, NY-97 was double-headed with Q-4's and covered the run in the remarkable time of 2 hours 3 minutes with 3390 tons. Naturally, all trains are not setting time records, but the signals have made a great deal of difference in keeping the trains moving, not only more quickly but more safely and efficiently.

The present method of handling helper engines on certain tonnage trains is somewhat unusual. On trains exceeding single-engine tonnage, which will go beyond Baltimore and likewise exceed tonnage on the East End, the helper engine pushes from Brunswick, Point of Rocks or Frederick Junction to Mount Airy Junction. After passing through the tunnel, it cuts off and drops slowly down to Hoods Mill behind its train, there to cross over and run around the train while it is taking water at Gaither. The helper recouples on the head end and proceeds eastward. Six trains were handled in this manner on a recent date. Other trains (such as the fast freights) are double-headed over the entire line, while some carry helpers only on the assigned helper districts. By placing the helper on the rear of tonnage trains, a better movement is afforded, since the train has less slack motion.

This, then, is the Old Main Line. For a piece of railroad which had fallen almost into discard five or six years ago, the Old Main has come back with a bang! New blood has been added, and now the Old Main carries on, doing its share in helping to move men and materials.

A station on the Balkan Railway. Burton Holmes, from Ewing Galloway.

Yugoslav Railroads, Pathway to the Orient

BY ARTHUR L. STEAD

ACROSS the Adriatic Sea to the east of Italy lies Yugoslavia, now occupying a vital position in relation to Hitler's stronghold. Far-flung railroads stretch inland from the Yugoslavian Adriatic Coast, through Belgrade, Brod, Zagreb, and lead directly into the heart of enemy territory.

To reach Yugoslavia today, Allied forces must rely on the sea route across the Adriatic. In peacetime, the country was approached from the west by fast through passenger trains offering the maximum of comfort; the most famous of these was the *Simplon-Orient Express.* This great international train, named after the tunnel through which it passed, brought Yugoslavia within 32 hours of London, thanks to the cooperation of the Southern Railway of England, the French State Railway and the Italian State Railways.

Like all the world-famous prewar European long-distance passenger trains, the deluxe *Simplon-Orient Express* today is but a memory, yet all eyes are directed on Yugoslavia and its railroads. The 4550 miles of standard-gauge railway and the approximately 2000 miles of narrow-gauge tracks serving this corner of the European battle-front are of the very greatest military importance.

Yugoslavia forms the great western bulwark of the Balkans. Running along the eastern shores of the Adriatic Sea, Yugoslavia is bordered on the north by Italy, Austria and Hungary. To the east lie Rumania and Bulgaria and to the south Albania and Greece. The present-day railroad system of Yugoslavia was developed by degrees through the amalgama-

tion of a number of narrow- and standard-gauge roads serving the former countries of Serbia, Montenegro, Bosnia, Herzegovina, Croatia, Slavonia and Dalmatia.

During World War I, tremendous damage was inflicted upon the railroads of this corner of Europe. In Serbia alone, out of an original stock of 170 locomotives and 5000 passenger and freight cars, only six sound locomotives and 200 usable cars remained in service on the conclusion of hostilities. Between 1918 and 1939, complete railroad restoration was affected in all the territories forming the new Yugoslavia, and at the outbreak of the present struggle the Yugoslavian railways formed a very efficient and well-equipped undertaking, having its headquarters at the national capital city of Belgrade and giving employment to approximately 81,000 workers.

For purposes of administration, the Yugoslavian railroads are divided into five distinct zones or divisions, controlled respectively from Belgrade, Zagreb, Ljubljana, Sarajevo and Subotica. The principal trunk route, mostly double-tracked, crosses Yugoslavia from northwest to southeast. It commences at Rakak, on the Italian border near Trieste, where junction is effected with the Italian State Railways, and proceeds to Caribrod, on the Bulgarian border northwest of Sofia, a distance of approximately 613 miles. The principal points on this route are Ljubljana, Zagreb, Brod, Belgrade and Nish. From Nish (heavily bombed by the Allies many months ago) another important trunk route diverges southward to Skoplje and the Greek frontier depot of Djevdjeli.

Another main line proceeds eastward to Zsombolya and the Rumanian State Railways system after branching from the main Rakek-Caribrod trunk route at Vinkovci (between Brod and Belgrade).

It was between Rakek and Djevdjeli that the prewar *Simplon-Orient Express* journeyed over Yugoslavian tracks in the course of its long daily run between Calais and Athens. This Rakek-Djevdjeli run was one of approximately 740 miles. Forward from Nish, via Caribrod, passed the Istanbul section of this famous train, which in Turkey linked with the *Antolie Express* running to Ankara, and the *Taurus Express* serving points lying between the Eastern Mediterranean and the Persian Gulf.

Northward from the principal trunk route across Yugoslavia run many important tracks making connection with the Austrian and Hungarian railroad systems, while to the south passes a valuable trunk road linking Zagreb (some 130 miles east of the Italian border) with the Adriatic port of Split. Throughout southwestern Yugoslavia, standard-gauge railroad facilities are lacking, but several vital narrow-gauge roads link the interior and the Adriatic Sea. Noteworthy are the line from Belgrade to Dubrovnik and the route connecting Sarajevo (midway between Belgrade and the coast) with Brod, on the main northwest-to-southeast trunk road.

Yugoslavia has proved a perfect nightmare for the railroad builder. On the main trunk route from Rakek to the Greek frontier at Djevdjeli all was comparatively smooth sailing, but in the mountainous interior to the south and west of Belgrade tremendous difficulties have faced the construction engineers. A most striking job, from the construction viewpoint, was the opening of the 2-foot 6-inch railway running southwest from the capital to Dubrovnik. This road is 425 miles in

Bombardier's view of railroad shops and a wye at Nish. When the enemy evacuates territory such as this, all railroad installations are destroyed and must be rebuilt by Allied engineers.

Associated Press.

length, and it negotiates five successive watersheds and reaches a maximum summit level of 3100 feet. In one 183-mile section (between the depots of Chachak and Sarajevo) no fewer than 123 major tunnels can found. Six miles of the stiffest country are negotiated by rack-and-pinion arrangement.

In peacetime, the Yugoslavian railways handled annually about 56 million passengers and 20 million tons of freight. The principal freight traffic consisted of agricultural products, timber and minerals, and much of the business consisted of through traffic not originating in Yugoslavia but tendered to the Yugoslavian railroads by surrounding national systems.

Passenger trains in Yugoslavia always have been run at slow speeds as compared with American services. The double-headed *Simplon-Orient Express*, with its heavy load of deluxe cars, occupied 17¾ hours on the 613-mile run from Karek to Caribrod, equivalent to an average speed of just under 35 miles an hour, not allowing for stops of up to 15 minutes at several intermediate points. Local passenger trains in Yugoslavia are formed of four distinct classes of car. First- and second-class cars provide really comfortable travel. Third-class cars handle the bulk of the business and fourth class is a sort of "peasant" class formed of cars with hard wood seats.

Local passenger cars are often of decidedly primitive design, signaling apparatus is of the simplest possible character and the steam locomotives found on some routes seem to date back for long years. On the standard-gauge roads, locomotives of both German and Austrian manufacture are common, the 2-6-2, 2-8-2 and 4-6-2 types predominating. As coal is of poor quality, double-heading frequently is resorted to on trunk roads. A 2-8-2 locomotive built by the Hungarian Locomotive Works is largely utilized on the narrow-gauge lines, taking the place of Austrian Mallets formerly favored.

The narrow-gauge railways are strangely reminiscent of similar light roads in North Africa. Like the Tunisian roads, the Yugoslavian lines run through exceptionally difficult country. The fastest narrow-gauge steam train linking Belgrade with Dubrovnik (on the Adriatic), a distance of 425 miles, had a peacetime schedule of 23 hours. Over this route, with its numerous severe curves, tunnels and bridges, three-car Diesel trains used to make the run in 16½ hours, but with oil shortages these Diesels were withdrawn from service.

It is likely that military railroad units will unearth the Yugoslavian Diesels for wartime use. The motor cars of these Ganz-built trains are powered by 240-horsepower engines driving all four axles through a five-speed gearbox. Maximum axle load is 7½ tons, and Timken roller-bearing axle-boxes are employed. Each motor car seats 37 passengers, and each trailer also seats 37. A complete train is made up of two motor cars and one trailer car. In addition to the passenger compartment, the motor cars include a driver's compartment, a baggage section and a lavatory. The trailers include, apart from the ordinary passenger accommodations, a kitchen, bar and lavatory. For ordinary running, air brakes are employed with electromagnetic brakes for use in emergency.

The damage inflicted upon Nazi communications by Yugoslavian railroad patriots has been featured in the war news for many months. Sabotage has been carefully organized and timed. Destruction has taken every conceivable form, from the blowing-up of depots, bridges and tracks to the derailing of Nazi troop and supply trains, the damaging of vital signaling and communications and the upsetting of locomotive coaling and watering arrangements.

At the time of the North African campaign, the work of the Yugoslavian guerillas seriously interrupted the German movement of men and supplies between the Mediterranean and Russian fronts, and time and again disturbed the flow of Hitler's oil supplies from Rumania to North Africa. Many an enemy tank unit forming part of Rommel's retreating army was rendered immobile by gasoline shortage following holdups on the Yugoslavian railways, and in the Italian campaign Yugoslavian railroad colleagues have rendered the Allies vital help.

Beautiful masonry bridge near Brod.

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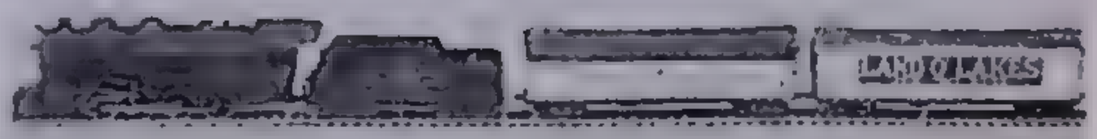

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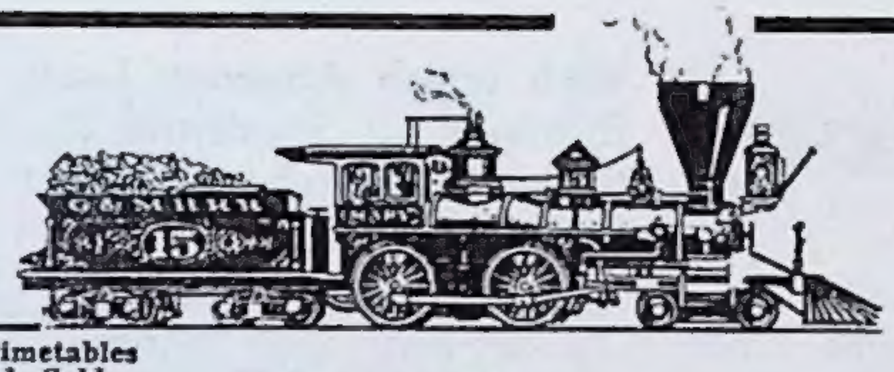

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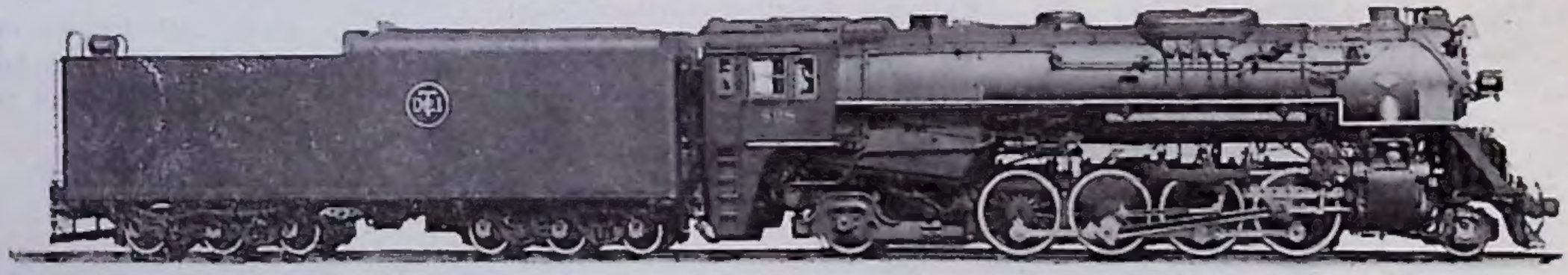

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Case History

With which Attorney Louis F. Meyer Jr. illustrates important railroad legal point

ALL Harford County knew why St. James' African Methodist Episcopal Church was fermenting in indignation. Local preachers were howling in relays, exposing the temperature, topography and demonic public works of that select sector of hell to which the Baltimore & Ohio Railroad and all its officers were destined to be consigned by the elemental justice of Eternal Judgment. Mail-order bishops were popping rivets to right and left. The B&O was going to dig up Aunt Annie!

A new line was to be constructed as a safe approach to the great bridge then a-building 90 feet above the Susquehanna at Havre de Grace. Only the surveyors know that no matter how the new line was located, it was bound to clip through one or more of four local church burying-grounds. Astute counsel knew that the law treats the deceased with all the ostentatious reverence of an undertaker. Eenie, meenie, miney, mo: St. James' graveyard was due for a whittling.

The blandishments of real-estate agents and the sight of folding money did not tempt the stewards and trustees from the straight and narrow. They remembered well that a four-hour jamboree had scarce sufficed to bury Aunt Annie, and her premature resurrection stirred ominous theological speculation. They would not sell.

'Way back in 1826 the state's power to condemn and appropriate private property for public use had been delegated by the Maryland legislature to the B&O by charter, and the railroad was fairly confident that no dropped stitches marred the texture of *that* document. The cemetery trustees rested upon an 1840 act which prohibited the extension of public highways to or through cemeteries. Both sides were thus in excellent remunerating spirit from a lawyer's point of view.

Relying on its lawful powers, the railroad instituted condemnation procedure to take a triangular half of the two-acre plot. St. James' had two strikes on it from the start: The railroad's offer of compensation had been hopefully fair, and anyhow 99.44 per cent of the 1910 Maryland bar coveted berths in the B&O legal department. A commission appointed to assess the value of the sequestered acre reported to the circuit court, and the judge gave a clear board through the sacred precincts.

Counsel for the church then proceeded to file an appeal to the highest state court, whereupon both sides fell to drawing briefs and examining into the internal workings of the other, erupting a forensic volcano when the august tribunal deigned to give ear.

On behalf of outraged Zion it was argued that the state could not create corporate ghouls; that the profit-seeking railroad was not sufficiently public-servant to condemn anything; that the legislature had confined the width of the roadway to 66 feet, not authorizing the pocketing of half a two-acre square; and that because alternate routes were available, St. James' sacrosanct soil should remain inviolate. And wasn't burying as important as carrying?

Railroad talent contended that the state can delegate any of its powers to other agencies. Yon corner cop is only a private person clothed with power to preserve peace and order. Would he be likely to perform his social-minded duties were he not paid? Was not the cemetery careful to charge adequately for its facilities? The sale of grave lots procured revenue to the church as well as peace of mind for the purchasers, wary of the dissecting rooms of Baltimore medical colleges. And a railroad must use a feasible route, while burying can be done anywhere in earth.

After muttering impressively behind its whiskers, the majestic court issued wisdom to the multitudes. The railroad was confirmed in its power to locate wherever necessary and to take private property upon appropriate compensation. The judicial conscience could not be strained to restrict the railroad's acquisition of land to the authorized width of roadbed only. That the B&O could have selected another or other routes to reach its authorized terminus was of no moment, since the other cemeteries along the alternative routes might have made the same argument. The line would go through.

Aunt Annie was transplanted 'way up in one corner of the triangular leavin's, and despite innocent Aframerican trepidations, there are no zombie reports from Saint James'.

★ **Kings and states exercise the power to take property of private persons for public use as required by the common convenience. Since it is impractical for the state to meet all of public necessity, this authority may be placed in private hands while detracting nothing from the public nature of its use. A charter creating a railroad corporation, granting to anyone the right to use the railroad's facilities without discrimination and requiring the company to carry the persons and goods of all applicants, gives the company power to condemn private property for its public purposes.**

Instead of taking a right of way ("easement") across land, the corporation may choose the actual ownership of a strip or an entire tract for road, structures and facilities, limited only by the criterion of necessity. However, it must choose the least annoyance consistent with economy and reason. As must the state, so must its proxy pay fair compensation for property condemned. These "damages" may be determined by agreement, arbitration, commissions of experts, judges, or special juries. Each state establishes its own procedure.

Although most widely known as a battle-ax, wielded by the railroads when refractory owners refuse to sell or attempt to extort, condemnation has great utility in curing faulty land titles. Missing heirs and wayward sons whose existence or status is hazy may make impossible a valid sale of property by those in possession. Confronted with such a snarl, the railroad pays value into the hands of the courts and, while conflicting claimants wrangle, appropriates the land, free and clear of contentions.

Correspondence

I have watched with sadness the gradual destruction of the Northwestern Pacific's individuality under 14 years of SP control; it is becoming more and more like a second-rate SP branch. With assumption of complete control by the SP in 1930, the railroad began a long decline. Today the narrow-gauge branch is discontinued—in fact, nearly all branches, including the interurbans, are. All of the 4-4-0's except possibly No. 23) are gone, and most trains are hauled by old SP 2-8-0's and 4-6-0's. The original 25 NWP engines still on the roster are confined to switching and light freight work except for the 130-class 4-6-0's, which haul the sole surviving passenger run over the 139-mile Northern Division between Willito and Eureka.

W. R. Hogarty, N. T. U. Occidental College, Los Angeles 41, Calif.

[1930 also marked the beginning of a depression, which no doubt had more to do with NWP's misfortunes than did the SP.—*Ed.*]

About May 15 I started keeping a record of Santa Fe locomotives I saw passing through Pasadena. It might interest you to know that in about five weeks' time I saw 33 of the 35 4-8-4's described in June TRAINS (all but 3753 and 3760) and 19 of the 4-8-2's ranging from 3704 to 3750.

Charles S. Dwight, 1835 Wagner St., Pasadena 8, Calif.

The run on the Santa Fe from La Junta to Gallup, in my estimation, is the most picturesque piece of railroad in the United States. I've ridden troop trains over the Long Island, Pennsy, Richmond - Washington Line, Seaboard, Frisco, Santa Fe, SP, Union Pacific and the Rock Island. Every ride was enjoyable. But I managed to ride the cab of the 3734 from La Junta to Raton. Standing in the right-hand gangway, it was the most thrilling sight in the world watching the 2-10-2 coupled on the nose of the 3734 and one at the tail end take our 20 heavy sleepers up the 3.5 per cent grade from Trinidad to the top of the pass.

Pvt. F. Ray McKnight, U. S. Army.

My road [B&O] has recently rebuilt two of the 5300-series engines, the 5314 ex-*President Lincoln*, and the 5318, ex-*President Garfield*, from Class P-7 to P-7c. The 5318 has a new tender tank like those on the T-3b freight engines. We have had her on Train No. 8 out of Washington and back on No. 27, the *Royal Blue* (Blue Goose, we call her). I had the 5318 the other day, and she is good and tight, and a free steamer, for sure. The new tender enables us to go through Washington to Jersey with plenty of coal to spare. On our other P-7's running same pool, we usually have to dig down coal for the Lowry stokers on the last hour of our run, either way, when we have over eight cars—and we usually have plenty more than eight cars on all trains.

Bruce D. Fales, B&O Fireman, Silver Springs, Md.

Answers to quiz, page 14

A, Santa Fe. B, Pennsylvania. C, Northern Pacific. D, Erie (this is a trick question; the herald has been twisted 45 degrees). E, Alton (another trick; upside down). F, Canadian Pacific. G, Wabash. H, Great Northern. I, Gulf, Mobile & Ohio. J, Denver & Rio Grande Western. K, Frisco. L, Southern Pacific. M, Belt Railway of Chicago. N, Chicago Great Western. O, St. Louis Southwestern. P, Texas & Pacific. Q, Georgia. R, Missouri Pacific. S, Chicago & North Western. T, Baltimore & Ohio. U, Bessemer & Lake Erie. V, Minneapolis & St. Louis. W, Missouri-Kansas-Texas. X, Illinois Central.

Those Photo Albums

By far the most popular railroad books currently in print are the *Trains Albums of Railroad Photos*, and yet these popular albums were to some extent an accident. To be sure, we'd thought some about a railfan-type presentation of railroad photos, but the plans didn't congeal. Then one day in the spring of 1942 a paper salesman popped in with samples of a paper such as we'd never seen before. It had an unusually high gloss on one side, a "burnished finish," the salesman called it. The paper had originally been made for box-coating purposes, but several tons of it were on hand in Milwaukee, and "could we use it?"

At first try we couldn't. The burnished surface took a beautifully clear and sharp halftone impression, but the ink wouldn't really stick to the surface and the print was all to easily scratched or smeared. Special ink and special handling methods cured the mechanical problems, and then we set about designing books which could include extremely large photos, as big as two pages of this magazine, and which would permit the railfan to remove pictures at will for framing or scrapbook use without spoiling the rest of the book. Since the paper was coated on one side, the first step was clear. We would print on only one side of the sheet. And a plastic ring binding solved the problem of removing sheets without damaging the binding.

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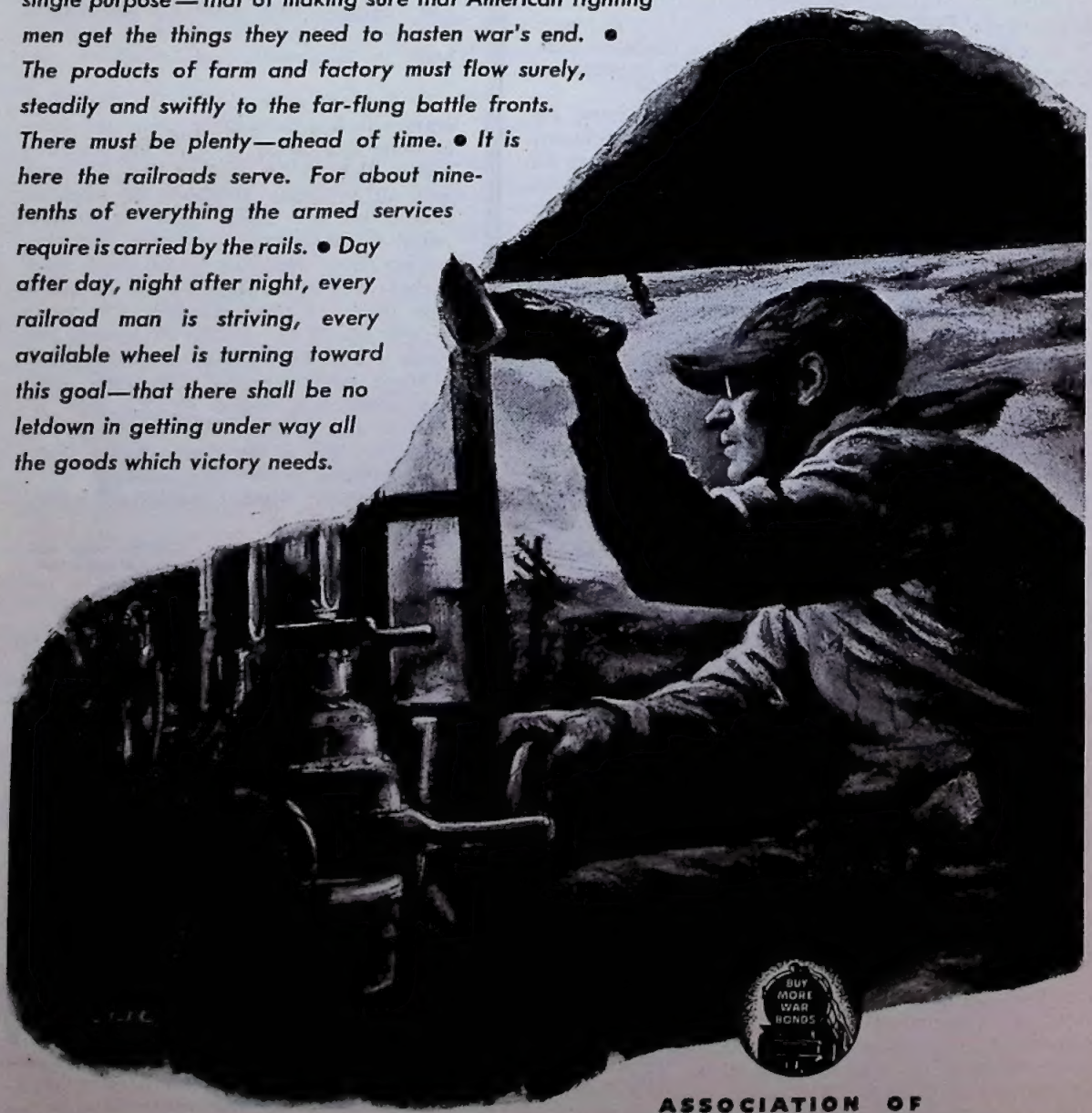

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